

# Journal of the Royal Society of Arts

NO. 5019

FEBRUARY 1958

VOL. CVI

## FORTHCOMING MEETINGS

WEDNESDAY, 29TH JANUARY, at 2.30 p.m. '*The Marriage of Art and Science*', by A. R. J. P. Ubbelohde, M.A., D.Sc., F.R.S., Professor of Thermodynamics, University of London (Imperial College of Science and Technology). Robin Darwin, C.B.E., Hon.A.R.C.A., Principal, Royal College of Art, in the Chair.

WEDNESDAY, 5TH FEBRUARY, at 2.30 p.m. '*Setting the Stage*', by Laurence Irving, O.B.E., R.D.I. John Clements, C.B.E., in the Chair.

TUESDAY, 11TH FEBRUARY, at 7.30 p.m. FILM EVENING. (See programme on page 142.)

WEDNESDAY, 12TH FEBRUARY, at 2.30 p.m. '*The Inhabitants of Switzerland*', by Sir Gavin de Beer, F.R.S., Director, The British Museum (Natural History). His Excellency Mons. Armin Daeniker, Swiss Ambassador, in the Chair.

THURSDAY, 13TH FEBRUARY, at 5.15 p.m. COMMONWEALTH SECTION. THOMAS HOLLAND MEMORIAL LECTURE. '*The University of Malaya*', by Sir Sydney Caine, K.C.M.G., Director, London School of Economics and Political Science. His Excellency Dato Nik Kamil, C.B.E., High Commissioner for Malaya, in the Chair. (The lecture will be followed by the showing of a film. Tea will be served in the Library from 4.30 p.m.)

WEDNESDAY, 19TH FEBRUARY, at 2.30 p.m. '*Rocket Propulsion*', by J. E. P. Dunning, M.A., F.R.Ae.S., Chief Superintendent, Royal Aircraft Establishment, Westcott. Patrick Moore, F.R.A.S., in the Chair.

WEDNESDAY, 26TH FEBRUARY, at 2.30 p.m. FERNHURST LECTURE. '*Gibberellic Acid: A New Plant Hormone Controlling Growth and Flowering*', by P. W. Brian, Sc.D., Ph.D., Head of the Department of Microbiology, Imperial Chemical Industries Ltd. T. A. Bennett-Clark, M.A., Ph.D., F.R.S., Professor of Botany, University of London (King's College), in the Chair.

THURSDAY, 27TH FEBRUARY, at 5.15 p.m. COMMONWEALTH SECTION. HENRY MORLEY LECTURE. '*The Second Indian Five-Year Plan*', by Geoffrey Tyson, C.I.E., Secretary, The India, Pakistan and Burma Association. Sir Percival Griffiths, C.I.E., in the Chair.

WEDNESDAY, 5TH MARCH, at 2.30 p.m. '*The Importance of a National Plan for the Location of Commerce and Industry*', by J. R. James, O.B.E., B.A., Senior Research Officer, Ministry of Housing and Local Government. Lady Brunner in the Chair.

MONDAY, 10TH MARCH, at 6 p.m. The first of two CANTOR LECTURES on '*The Geological Survey of Great Britain*', by Sir William Pugh, O.B.E., D.Sc., F.R.S., Director, Geological Survey of Great Britain and Museum of Practical Geology.

WEDNESDAY, 12TH MARCH, at 2.30 p.m. E. FRANKLAND ARMSTRONG MEMORIAL LECTURE. '*World Hunger as a Biochemical Problem*', by N. W. Pirie, F.R.S., Head of the Biochemistry Department, Rothamsted Experimental Station. Sir E. John Russell, O.B.E., F.R.S., in the Chair.

MONDAY, 17TH MARCH, at 6 p.m. The second of two CANTOR LECTURES on '*The Geological Survey of Great Britain*', by Sir William Pugh.

SYLLABUS OF CANTOR LECTURES ON 'THE GEOLOGICAL SURVEY OF GREAT BRITAIN'

LECTURE I. The development of geology as a science; foundation of the Geological Survey of Great Britain; geological maps and the progress of the Survey in making them; contributions of geophysical surveys and of exploratory boreholes.

LECTURE II. The uses of geological maps in the advancement of geological science: their significance in the search for and the exploitation of naturally occurring materials of economic importance such as coal, iron ore and water.

*Fellows are entitled to attend any of the Society's meetings without tickets (except where otherwise stated), and may also bring two guests. When they cannot accompany their guests, Fellows may give them special passes, books of which can be obtained on application to the Secretary.*

FILM EVENING

The third Film Evening of the Session will be held at the Society's House on Tuesday, 11th February, at 7.30 p.m. The programme to be screened is as follows:

*Generator 4*

*Three Roads to To-morrow*

*The Rivers of Time*

*Generator 4* (36 minutes) is in Eastmancolour and was made by Crawley Films Ltd., of Ottawa. It is a sequel to *Man with a Thousand Hands*, the film about the Kitimat Project which was shown in December, 1955, and tells the story of a young French-Canadian engineer who goes to Kitimat to supervise the installation of the fourth turbo-generator in the underground power house which supplies current to the aluminium smelter. The film gives a striking impression of the enormous natural obstacles which had to be overcome in making this enterprise possible, and it also depicts the new community which has grown up among the beautiful fjords and mountains of the Far West of Canada. It

will be introduced by Mr. J. E. Sheppard, London Correspondent for the Aluminium Limited Group of Companies.

*Three Roads to To-morrow* (23 minutes), also in Eastmancolour, was produced by Greenpark Productions Ltd. for the British Petroleum Company. It is constructed around the experiences of three students at Ibadan University, who come from homes in the three present-day regions of Nigeria. The film will be introduced by Mr. Dudley Knott, Films Officer of the British Petroleum Company.

*The Rivers of Time* (30 minutes), is in Eastmancolour and was made for the Iraq Petroleum Company by The Film Centre. It is characterized by photography of great feeling and skill, and deals mainly with the Sumerian and Islamic cultures of Mesopotamia. It will be introduced by its producer, Mr. Sinclair Road.

Tickets are not required for this occasion and Fellows are invited to bring two guests. Light refreshments will be served in the Library afterwards.

#### SPECIAL GENERAL MEETING

NOTICE IS HEREBY GIVEN that a Special General Meeting of the Royal Society of Arts will be held at the Society's House on Monday, the Tenth day of February, 1958, at two o'clock in the afternoon, when the subjoined Resolution will be proposed:

'That this General Meeting of the Members of the Royal Society of Arts approves and concurs in the grant of a mortgage of the Society's premises, Nos. 6/8 John Adam Street, Adelphi, London, W.C.2, to the Legal & General Assurance Society Limited to secure the repayment of the sum of £20,000 (twenty thousand pounds) at such a rate of interest and on such other terms as the Council thinks expedient.'

By Order of the Council,

KENNETH WILLIAM LUCKHURST,

*Secretary.*

*(The purpose of the proposed loan is to provide for the cost of furnishings and certain necessary structural alterations consequent on the recent extension of the Society's premises.)*

#### TEMPORARY CLOSING OF THE PARLOUR

Owing to alterations which are now being made to the Society's House, it is regretted that the former parlour on the ground floor is no longer available for the use of Fellows. A larger room on the first floor of the main building is being prepared to take its place, and meanwhile other temporary arrangements are being made for the comfort of Fellows.

## DEATH OF SIR HERMAN LEBUS

It is with deep regret that we record the death, in London on 15th December last, of Sir Herman Lebus, C.B.E., who was elected a Member of Council of the Society at the last Annual General Meeting.

Herman Andrew Harris Lebus was born in 1884, the son of Harris Lebus, and educated at the City of London School and privately. Entering the family furniture business of Harris Lebus Ltd. as a young man, he devoted the greater part of his life to developing it to its present huge size and scope. The record of his service on quasi-governmental and official committees is a measure of the extent to which his advice was sought in the affairs of his own industry (though his own influence extended beyond it): he was Chairman of the Furniture Industry Post-War Reconstruction Committee, 1943; a member of the Board of Trade Utility Furniture Advisory Committee, 1942-9, and adviser to the President of the Board of Trade on Utility Furniture for part of the same period; a member of the Board of Trade Furniture Production Committee, 1944-9; President of the British Furniture Trade Confederation, 1944-50; an employer member of the Board of Trade Working Party, 1945-6; a member of the Committee on long term requirements and supplies of timber, 1947-8; and employer member of the Furniture Development Council, 1949-57.

He had for many years been a Liveryman of the Worshipful Company of Coopers. He was made C.B.E. in 1920 and knighted in 1946.

Sir Herman Lebus was elected a Fellow of the Society in 1956. Many Fellows will remember him as the very capable and knowledgeable Chairman at the Symposium on 'A New Approach to Furniture Design', held by the Society in January, 1956.

*Lord Nathan writes:*

Council should always include among its members men of proved business experience. That this is right and indeed essential is manifest when one recalls that 'R.S.A.' stands not merely for the abbreviated and accepted title 'Royal Society of Arts', but for the fuller title of our Society 'The Royal Society of Arts, Manufactures and Commerce'. It would indeed be ironic and mistaken were we not continually to seek reinforcement by calling in aid, as so successfully during the past two centuries, the abilities and experience of men like Sir Herman Lebus.

Manufacturer he certainly was, showing remarkable qualities of expertise and intuition. Commerce was in his blood and, as for arts, he had a sound taste in design and a shrewd knowledge of the apt material.

It is less than a year since Sir Herman became a member of Council. It had been confidently expected that he would bring to the Council Table, and thus to the advantage of the Society, the fruits of his massive and intimate experience of the intricate and expanding industry of which he had long been recognized as a hard-working, broad-minded and widely experienced leader—accepted, indeed, as the Leader.

His name is borne by what is reputed to be the largest furniture firm in the world. He would perhaps have preferred it said that he bore the name of the firm for which he worked so ardently, and so arduously, and which he cherished. Not only did he give his heart; he gave his mind and energies to the growth and expansion of this business which his father, Harris Lebus, had created in an earlier generation as a relatively modest



unit in the cabinet-making industry. In those days it was cabinet-making rather than the furniture industry of which one spoke. Hepplewhite, Sheraton and Chippendale and the rest were content to call themselves cabinet-makers. During the years since the now great firm of Harris Lebus was first founded, cabinet-making has become the furniture industry, and the Lebus organization has played a foremost part throughout the period of transition from the art of cabinet-making to the science of furniture-manufacturing. On all this Sir Herman from his young days to his last concentrated quite unusual abilities. His purpose was to make the furniture industry one of the best devised and most comprehensive scientific and up-to-date industries in the world and to see his firm with the foremost place in that industry. He introduced not only new methods of organization and manufacture but had a keen eye for design and an unfailing interest in it. The integrity of his mind could not tolerate the spurious, the shoddy or the misshaped. His standards in all this were high, but not merely 'in all this'. If he was not the actual pioneer in the welfare of those who worked with him for his firm, he was one of the first of the great industrialists to realize that devotion to the welfare of those working with the firm was an essential decency of industrial life: he saw to it that those in his employment were cared for well.

It was in keeping with his place in the industry that he should have played a dominant part as an adviser to the Government on how best to produce utility furniture, modest, cheap and well-designed: contemporary furniture, that is, for contemporary homes. Further, it may fairly be claimed that he laid the foundations of what is now called 'unit' furniture, so useful in the small dwellings of the young generation.

He was greatly respected and liked by all sections of the furniture trade, including his competitors, and while he remained active was the accepted leader of the whole industry.

He was not very widely known to the public; his was not a dramatic rôle; his interests were wide within a sphere that was itself relatively limited, but in all these things he gave of his best. His life, therefore, could be regarded as being at once honourable to himself and useful to the public well-being. If one looks in *Who's Who*, one will find only a few lines about him, but the central phrase records 'Chairman and Managing Director of Harris Lebus Ltd.' That central phrase of those few lines in *Who's Who* is what he would have felt the ample record of an ample life; for Sir Herman, Harris Lebus Ltd. and what it connoted was his life, and it was enough.

#### AWARD OF THE BENJAMIN FRANKLIN MEDAL FOR 1958

With the approval of H.R.H. The President, the second award of the Benjamin Franklin Medal has been made to Mr. Peter Ustinov, 'for his work in the field of drama'.

Fellows will remember that this award was instituted in 1956 to commemorate the two hundred and fiftieth anniversary of Franklin's birth and the bicentenary of his election to membership of the Society, and that it is to be made annually to 'individuals who have attained early distinction, with promise of future achievement, in the promotion of arts, manufactures and commerce'. The first recipient of the Medal, in 1957, was Professor F. C. Williams of Manchester University, 'for his contributions to electrical engineering'.

The son of Nadia Benois, the artist, and great-nephew of Alexandre Benois, whose name is celebrated in the history of the Russian Ballet, Mr. Ustinov was born in London in 1921, and educated at Westminster School. Before he

was 20 he had achieved success with his play, *The House of Regrets*, which was widely noticed. This early promise has since been amply—and adventurously—fulfilled. Mr. Ustinov has not only developed a remarkable vein of satirical comedy, notably in *The Banbury Nose* (1944), *The Love of Four Colonels* (1951), and *Romanoff and Juliet* (1956), but has shown, in *The Indifferent Shepherd* (1948) and *The Moment of Truth* (1951), that he can establish the finer shades of character. With each new play, Mr. Ustinov's ideas, and his skill in presenting them, seem to gather new force and direction.

As an actor, Mr. Ustinov has given repeated proof of artistry and versatility. Besides appearing with great enjoyment in several of his own plays, he has acted in rôles as different as those of Petrovitch (in a dramatized version of Dostoevsky's *Crime and Punishment*), Nero (in the film, *Quo Vadis*) and Peer Gynt (on television). Mr. Ustinov has also written and directed several films, including *School for Secrets*, *Vice-Versa* and *Private Angelo*. His latest film, *Lola Montez*, which was made in France, was recently shown in London.

Mr. Ustinov has been a Fellow of the Society since 1951. In February, 1952, he delivered the first of a memorable series of Cantor Lectures on 'The Modern Theatre', taking as his subject 'The Actor'.

### MEETING OF COUNCIL

A meeting of Council was held on Monday, 13th January, 1958. Present: Sir Alfred Bosson (in the Chair); Dr. W. Greenhouse Allt; The Honble. G. C. H. Chubb; Sir Edward Crowe; Mr. P. A. Le Neve Foster; The Earl of Halsbury; Mr. A. C. Hartley; Dr. R. W. Holland; Lord Latham; Mr. Edgar Lawley; Mr. O. P. Milne; Lord Nathan; The Earl of Radnor; Mr. A. R. N. Roberts; Sir Harold Saunders; Sir Selwyn Selwyn-Clarke; Dr. Dudley Stamp; Professor S. Tolansky; Mr. G. E. Tonge; Mr. Hugh A. Warren and Sir Griffith Williams; with Dr. K. W. Luckhurst (Secretary); Mr. G. E. Mercer (Deputy Secretary) and Mr. J. S. Skidmore (Assistant Secretary).

### ELECTIONS

The following candidates were duly elected Fellows of the Society:

Bradley, John, Halifax, Yorks.  
 Brandreth, Gordon Reginald, Alvaston, Derby.  
 Carpenter, Professor Edwin Francis, A.M., Ph.D., Tucson, Arizona, U.S.A.  
 Cocksedge, Geoffrey, N.D.D., London.  
 Cooke, The Rev. Canon Greville, M.A., Mus.B., Uckfield, Sussex.  
 Dale, William Scott Abell, M.A., Ph.D., Toronto, Ontario, Canada.  
 Felten, The Rev. Victor Carl Albert, A.B., B.D., Baltimore, Maryland, U.S.A.  
 Friberg, Arnold, Salt Lake City, Utah, U.S.A.  
 Gaiger, Raymond David, M.P.S., Hythe, Kent.  
 Grierson, Martin Cunningham, London.  
 Gill, Sir Archibald Joseph, B.Sc., M.I.E.E., Twickenham, Middx.  
 Gilroy, John Morritt, B.Sc., A.C.G.I., A.M.I.C.E., Kew Gardens, Surrey.  
 Home, Miss Elizabeth Primrose A., London.  
 Home, Gospatric David Laurens Reston, B.A., London.  
 Houle, Michael John, High Wycombe, Bucks.  
 Kirkland, Peter Derek, Weybridge, Surrey.

McDermott, Geoffrey Lyster, C.M.G., London.  
 Nolan, Thomas, Suva, Fiji.  
 Penrose, Charles, Jr., West Chester, Pennsylvania, U.S.A.  
 Plugge, Captain Leonard Frank, B.Sc., London.  
 Rix, Terence, F.L.A., London.  
 Ryan, Leonard Hugh, Haywards Heath, Sussex.  
 Seriès, Joseph Michel Emile, Curepipe, Mauritius.  
 Sharma, Jatinarayan N., M.A., Cinnamara, Assam, India.  
 Skelton, John Stephen, A.R.B.S., Burgess Hill, Sussex.  
 Smith, John Forrester, Eccles, Lancs.  
 Spillane, John, B.Sc., Demerara, British Guiana.  
 Wigmore-Beddoes, Dennis George, Headley Heath, Warwicks.  
 Wilson, John Basil, B.Sc., Ph.D., A.R.I.C., Carnoustie, Angus.  
 Wilson, Mrs. Imee, Guildford, Surrey.

#### REGENT'S PARK TERRACES

An exchange of correspondence with the Commissioners for the Crown Estates, regarding the future of the Regent's Park Terraces, was reported.

#### BENJAMIN FRANKLIN MEDAL

The Benjamin Franklin Medal for 1958 was awarded to Mr. Peter Ustinov (see separate Notice on page 145).

#### BOARDS OF ARCHITECTURAL EDUCATION

Dr. R. W. Holland was appointed as the Society's representative on the Board of Architectural Education of the Royal Institute of British Architects. Mr. O. P. Milne was re-appointed as the Society's representative on the Board of Architectural Education of the Architects' Registration Council.

#### OTHER BUSINESS

A quantity of financial and other business was transacted.

### THE SWINEY PRIZE FOR A WORK ON JURISPRUDENCE

The Council give notice, under the terms of the Swiney Trust, that the next award of the Swiney Prize will be made in January, 1959, the hundred and fifteenth anniversary of the testator's death. The Prize is a cup, to a value of £100, and £100 in cash.

The award is made by a joint committee of the Royal Society of Arts and the Royal College of Physicians, which appoints special adjudicators.

The Prize is offered for the best published work, alternately on Medical and General Jurisprudence, but if at any time the committee is unable to find a work of sufficient merit in the class whose turn it is to receive the award, it is at liberty to recommend a book belonging to the other class. On the last occasion of the award (1954), the Prize was awarded for General Jurisprudence. On the present occasion, therefore, it is offered for Medical Jurisprudence.

Any person desiring to submit a work in competition, or to recommend a work for the consideration of the Judges, should address such a communication to the Secretary of the Society, not later than 30th November, 1958.

The following is the list of former recipients of the Prize:

1849 J. A. Paris, M.D., and J. Fonblanque, for their work, *Medical Jurisprudence*.

- 1854 Leone Levi, for his work, *The Commercial Law of the World*.  
1859 Dr. Alfred Swayne Taylor, F.R.S., for his work, *Medical Jurisprudence*.  
1864 Henry Sumner Maine (afterwards K.C.B.), D.C.L., for his work, *Ancient Law*.  
1869 William Augustus Guy, M.D., for his *Principles of Forensic Medicine*.  
1874 The Right Hon. Sir Robert Joseph Phillimore, D.C.L., for his *Commentaries on International Law*.  
1879 Dr. Norman Chevers, for his *Manual on Medical Jurisprudence of India*.  
1884 Sheldon Amos, M.A., for his work, *A Systematic View of the Science of Jurisprudence*.  
1889 Dr. Charles Meymott Tidy, F.C.S., for his work, *Legal Medicine*.  
1894 Thomas Erskine Holland (afterwards knighted), K.C., D.C.L., for his work, *The Elements of Jurisprudence*.  
1899 Dr. J. Dixon Mann, F.R.C.P., for his work, *Forensic Medicine and Toxicology*.  
1904 Sir Frederick Pollock, Bt., and Professor F. W. Maitland, for their work, *The History of English Law before Edward I*.  
1909 Dr. Charles Mercier, F.R.C.P., F.R.C.S., for his work, *Criminal Responsibility*.  
1914 John W. Salmond, K.C., for his work, *Jurisprudence*.  
1919 Dr. Charles Mercier, F.R.C.P., F.R.C.S., for his work, *Crime and Criminals*.  
1924 Professor Sir Paul Vinogradoff, F.B.A., for his work, *Outlines of Historical Jurisprudence*.  
1929 Professor Sydney Smith, M.D., for his work, *Forensic Medicine*.  
1934 Professor Sir William S. Holdsworth, K.C., for his work, *A History of English Law*.  
1939 Professor John Glaister, M.D., D.Sc., F.R.S.E., and Professor J. C. Brash, M.C., M.A., M.D., F.R.S.E., F.R.C.S. (Ed.), for their work, *Medico-Legal Aspects of the Ruxton Case*.  
1944 Carleton Kemp Allen, M.C., M.A., D.C.L., for his work, *Law in the Making*.  
1949 Professor John Glaister, J.P., M.D., D.Sc., F.R.S.E., for his work, *Medical Jurisprudence and Toxicology*.  
1954 Professor G. W. Paton, B.C.L., M.A., for his *Textbook of Jurisprudence* (Second Edition).

#### PUBLICATION OF NEW LIST OF FELLOWS

A new edition of the List of Fellows, corrected to 1st January, 1957, is now ready, and copies will be sent to Fellows who apply for them. There is no charge.

It is regretted that there has been so long a delay in producing this List (the previous edition of which was corrected to 30th November, 1954), but in order to reduce printing costs a different process of reproduction has been employed, and a number of unexpected difficulties were encountered in the course of preparation. It is hoped that these will be eliminated when future editions are compiled.

# A SECOND CONFERENCE ON PERILS AND PROSPECTS IN TOWN AND COUNTRY

*arranged by the Royal Society of Arts and held at the Society's House  
on the morning and afternoon of Thursday, 21st November, 1957*

Opening Address by The Right Honble. Duncan Sandys, M.P.      Pages 150-154

## *First Session*

The Reclamation of Land Disfigured by Industrial Uses      154-173

## *Second Session*

The Skilful Enlargement of Villages      173-195

List of Organizations taking part in the Conference      195-196

## THE MORNING

### RECEPTION AND OPENING

*The delegates were received by Sir Stephen Tallents, K.C.M.G., C.B., C.B.E., a Member of Council of the Society and Chairman of the Conference Committee. Sir Alfred Bossom, Bt., LL.D., F.R.I.B.A., J.P., M.P., Chairman of Council of the Society, took the Chair.*

THE CHAIRMAN: Before I ask Mr. Duncan Sandys to open our proceedings I should like to make an announcement which I am sure will be of great interest to all Fellows of the Society and all who are present in this room. Yesterday we ventured to send to Her Majesty The Queen and His Royal Highness The Duke of Edinburgh a telegram offering our loyal and sincere congratulations on the occasion of the tenth anniversary of their marriage. I am very proud now to read you the reply which I have received:

I sincerely thank you, the members of the Council and the Fellows of the Royal Society of Arts, for your kind message.

ELIZABETH R.

We are particularly fortunate in having Mr. Duncan Sandys who, you will remember, came to the first Conference on Perils and Prospects about a year ago, with us again. He is here to-day in an entirely unofficial capacity, which has no connection with his present, vitally important, political office. It is a measure of his concern for the subjects we are to discuss that, in spite of his very heavy duties as Minister of Defence, he has found the time and energy to start the Civic Trust. Mr. Sandys tells me that he believes that in the near future the British Broadcasting Corporation is going to lend its support to the good work which the Trust is doing. This is a most valuable and encouraging sign, and it indicates what can be done in a short space of time, when there are men like Mr. Sandys to grasp—and make—opportunities.



## OPENING ADDRESS

BY THE RIGHT HONBLE. DUNCAN SANDYS, M.P.

May I begin by expressing my admiration for this wonderful new lecture bench, which has, I understand, been presented to the Society? In the precincts of this lovely building, it forms a fine example of the way in which the new can be skilfully combined with the old.

I regard it as a very special compliment to be asked to open this Second Conference: first, because it is always a risk to ask the same person to come two years running, and secondly, because the invitation on the last occasion was extended to me in my official capacity as Minister of Housing and Local Government, when I had a certain amount to do officially with all these things. Now, as Minister of Defence, I am, of course, right outside this field; but it is rather pleasant now and then to get away from high explosives and things of that kind, and to turn one's mind instead to the more inspiring side of our life and our civilization—the more constructive side.

I congratulate the Royal Society of Arts for the way in which they are steadily, and with great perseverance and determination, pursuing their objective of making the general public more conscious of the importance of appearances, whether in relation to preservation or to the planning of new building. My belief is that, as a result of the efforts made by your Society and the other bodies working in this same field over the last two or three years, one is beginning to notice in the Press and elsewhere an increased awareness of these values. I believe that items which the news editor would have thrown into the waste-paper basket a few years ago are now considered to be matters of interest and are printed.

Despite other distractions, such as the sputnik, the little dog, nuclear submarines, the Geophysical Year and all those matters which obviously have more news value and excitement, I believe that there is steadily growing a consciousness that we must preserve our heritage from the past and—what is perhaps even more important—that we must make our own contribution, the contribution of this generation, to the heritage of the future: and, moreover, that this contribution must be one which future generations will in their turn think it worth while to preserve. This greater public awareness of the problem—not of its solution—is something which you, who are the leaders of thought in this field, can perceive and act upon. That, as I see it, is one of the useful purposes of a Conference of qualified persons such as this.

Now there are, of course, many different approaches to these problems. There are different schools of thought and there is controversy. But that is just what we want; that is healthy. No art will spring from a stereotyped conception of one thing as right and another thing as wrong; it is all a process of trial and error, of differing opinions, and of the growth of a certain body of thought which becomes the expression of each age. At the present time we are still groping a great deal, which is not I think altogether surprising, because we



are in a period where so much has changed in the field of architecture and planning. Entirely new technical possibilities have been opened up for us. At the same time, the new pattern of industry, the increased volume of transport, the introduction of air travel on a very much greater scale, all these things have altered the requirements of the community and have made it necessary for the architect and designer to think afresh.

Sir Alfred kindly referred to the Civic Trust. I am very greatly encouraged by the support and goodwill which the Civic Trust has received in the short time since it came into existence. We have set ourselves—with great humility I assure you—a limited task. The Trustees certainly do not propose to express their views on all matters of architecture and planning, but we do think it desirable to bring together knowledgeable people. That is our object: to get the problems of to-day, big and small, studied by those who are qualified to express opinions upon them; then to arrange conferences where their studies and reports can be discussed; and then to give publicity to the results. That is the first thing, study.

The other main task which we are setting ourselves is to arouse public interest in this whole problem, because in the last resort it is the public that decides these things. So much to-day is done either directly or indirectly by the local authorities, which are merely the expression of the public will. The planning committees, the housing committees, the various bodies within local authorities, and the councils as a whole, are all enormously influenced by public opinion; as indeed they should be, because they are representative bodies. It may be a question of spending a little bit more in order to make something not unsightly. If a council feel they are going to be bitterly criticized for expenditure on something which would probably be regarded as unimportant, then they are going to hesitate. If, on the other hand, they feel they are going to be bitterly criticized for creating an eyesore, they will take the opposite view. It is of the utmost importance that the public as a whole should be mobilized. They may have quite differing views, but that does not matter. What matters is that the public should regard the appearance of their towns, villages and countryside as being something important, something to take an interest in themselves, something to which they expect their representatives to give full consideration and weight.

As we know from experience, it is only by controversy and the clash of opinions and a great deal of publicity that you do provoke public interest. That is why I am particularly glad your Chairman has mentioned the fact that the B.B.C. have agreed to collaborate with the Civic Trust in the preparation of a series of television films which I hope may be shown during the course of next year. Once you can get on to television you have broken through to an enormous public. I know. Not very long ago I was at a Conference: the first day, there were various things on the menu for breakfast, and I asked for eggs and bacon. I was brought a very nice poached egg and one rasher of bacon. Personally I would have liked two eggs and two rashers of bacon, but I did not say anything about it. The next day, however, when I asked for eggs and bacon, I got two eggs and two rashers of bacon, and I asked the elderly waitress why. She said, 'I saw you on the tele last night'. There lies the power of television.

The people who have the power are the public as a whole and, in consequence, it is those who represent the public and take the decisions on their behalf, who decide, for better or for worse, the fate of our country. In its publications the Civic Trust is, therefore, going to pay special attention to the task of bringing the results of its studies directly to the notice of the elected members of Local Authorities, particularly to the members of planning and similar committees.

To-day you are to discuss two very important problems. One is the reclamation of land disfigured by industrial uses. The other, perhaps the more difficult, is the enlargement of villages.

Both these problems of course, are not in the least new. They have existed all through the ages. They are constantly reappearing. So long as our country is a living country, so long as its industry develops and new processes appear, so long will the shape, size and location of our buildings, factories and roads have to be modified to meet the needs of each successive age. The struggle to preserve and build what is good, and to harmonize the two, is one which will endure. It is like the problem of the gardener and the weeds: he has to keep at it all the time. If you let up at all, you very soon find either that the land has been disfigured by one industrial process or another, or else that your new construction has itself provided some kind of disfigurement or disharmony which has spoilt the scene. It is really a struggle against ugliness and for beauty, and they are both part and parcel of the same problem.

It is also a question of whether, in this modern, industrialized, fast-moving world, beauty is still regarded as something of value. I believe that is the crux of the whole question. Sometimes it costs no more to make a thing beautiful, but more often it does, in fact, involve some sacrifice, either in terms of extra cost or of loss of efficiency or convenience. New buildings must, of course, be designed primarily for usefulness and efficiency, and for the convenience of those who live or work in them. Cost, again, is naturally a very important factor. You cannot get away from that. But efficiency, convenience and economy in expenditure are not absolute standards. It is a matter for discussion exactly what you accept and what you have to reject. In order to keep within necessary financial limits, some degree of efficiency or convenience usually has to be sacrificed. On the other hand, sometimes in order to get efficiency we have to raise the financial limits which have been previously laid down. When this happens, wise firms or authorities usually decide: 'Well, we had better spend a little more to get such and such considerable additional advantage and if we have to make economies we shall have to make them somewhere else.' The point I am trying to make is that it is all a matter of arriving at a reasonable compromise, a compromise between various important factors. All I would ask—I would press—is that beauty, that is to say pleasing appearance, should be included always among the factors which are weighed in deciding what can be afforded and what cannot be afforded. I am not suggesting that large additional sums should be spent to put frills on buildings or into the design of new areas. I think an architect has failed if a building which is efficient cannot also be beautiful. But we have got to be prepared to accept that some sacrifice may

have to be made in convenience or some small additional cost incurred for the sake of good appearance. All I claim is that good appearance must be regarded as one of the factors, one of the important factors, which have got to be weighed in arriving at this eventual compromise.

It may be a matter affecting road signs: the letters on them might need to be a little smaller, in which case perhaps the motorist might not be able to drive through the old village quite so quickly; he might have to slow down in order to be able to read the sign. That may or may not be regarded as acceptable. Similarly with street lighting: perhaps in order to get a more pleasant looking lamp-standard you might have to forego a little of the brilliance of the light. Obviously there comes a point where it is road safety that is the first consideration, but the codes of lighting are not necessarily the last word on a particular matter. There must be a certain amount of flexibility. Again, all I beg is that beauty and good appearance should be one of the elements for which we are prepared to make some sacrifice.

Where land disfigurement is concerned, I think responsibility is largely recognized by the community and by industry, whether public or private. When it comes to the expansion of a village, I think the problem is more difficult and more varied. There are many expansions going on and there will be many more. What is needed, of course, is not a mimicry of the past but work which shows understanding and sympathy with what already exists. Sympathy can be shown in many ways: by choice of materials, by the planning of new additions (so that the old village forms an integral part of the new and is not just left as a museum or a meaningless appendage), by designing the character of the new houses and village streets in such a way that they look like village houses and village streets and not just well-designed urban houses in urban streets, transplanted to the edge of an essentially village community.

These are just a few rambling thoughts from someone who claims no expert knowledge on any of these subjects. It is the public (and I am one of them so far as you are concerned) who have got to be interested if we are to succeed. In your discussions you will no doubt examine all these questions in much detail. You are right in each case to discuss the perils and the prospects as a single problem and not separately. People are gradually becoming aware of the perils, and I hope that your Conference will give them a new vision of the prospects, a new awareness and desire for the beauty and progress which I believe are within our grasp.

THE CHAIRMAN: We are all very grateful to Mr. Sandys. His words will stimulate many people to join in the discussion who otherwise would have sat quiet. He said that this is a very controversial subject and one that we must study closely. I would add, in emphasis, that there are very great risks. They are growing every day. In this last few months we have had the problems of St. Paul's Cathedral, the Nash Terraces, the new main roads and by-passes, the airports. But I think we are still justified in saying that Great Britain is full of beautiful natural and architectural gems. They are ours, and we are their custodians. It is up to us to see that they are preserved and passed on in as good and if possible a better condition than when we became responsible for them.

It is hardly less important to ensure that new work should be made to fit into its environment. There are people who would put some of those vast skyscrapers in close proximity to our very historic and irreplaceable heirlooms. But those who have a real regard for these giant buildings and who have been responsible for creating some of the biggest and most important examples of them, recoil with horror at the way we are casually talking about them here in England. They know what it means when you put a big building of that sort right against something that is much smaller and very beautiful. It destroys its quality and diminishes its value. The relationship is something quite different. We in England are not used to such mammoth structures yet, and it is essential, as Mr. Sandys said, that we should study any proposals of this kind carefully.

We owe a great debt of gratitude to Sir Stephen Tallents, for he is the man chiefly responsible for getting these two conferences undertaken. We also owe much to you, ladies and gentlemen, for coming here to-day. There is a lot to be done in your conference, and I will not keep you from it any longer, except to say once again to Mr. Sandys thank you for coming and for all you have said to us this morning.

*The vote of thanks to Mr. Sandys was carried with acclamation.*

#### FIRST SESSION:

### THE RECLAMATION OF LAND DISFIGURED BY INDUSTRIAL USES

*with Sir William Holford, Professor of Town  
Planning, University College, London, in the  
Chair*

THE CHAIRMAN: The Conference last year, after sounding the alarm, decided that this year it was going to get down to cases. The first case to be made this morning by two very experienced speakers is that of the reclamation of land disfigured by industry. I am not quite sure, after hearing the Chairman just now, why I have been asked to chair this Session, but I do not propose to take issue with Sir Alfred Bossom on the subject of the merits or otherwise of tall buildings because I think we have more important things to discuss this morning.

The problem of reclamation covers everything from the cutting down of trees, and mineral extraction, to manufacture; and its results range from industrial squalor of a really monumental kind, particularly in the older industrial districts, to the small but infinitely vexatious problem of litter. Nature, who is governed by ecological rules when she is left to herself, normally covers up her disfigurement and very quickly offers a new field for exploitation. Man, who is governed not by ecological rules but by economic necessities which he has created for himself, only too easily condemns his mistakes to exist almost in perpetuity, except where by conscious effort and even more by far-reaching economic planning he redeems them. And that, as I understand it, is the purpose of this first Session of the Conference. As Mr. Sandys said, it is not only a struggle against ugliness, it is a struggle for beauty; and I must say that I should like to emphasize the prospects rather than dwell solely on the perils. Last year an extraordinarily valuable conference took place under the auspices of the International Union for the Conservation of Nature and Natural Resources. I have with me the *Proceedings* of that conference, at which some 21 papers were presented on the subject which we are discussing this morning. Any of you who are interested should get the *Proceedings* and read those papers and the two resolutions to which

effect was given at the end of the conference. It seems odd that when we are busy exploring outer space, adding a new dimension to our activities, we have been so slow in dealing with this complementary problem of the disposal of waste and the adjustment of ecology in the dimensions which we already have. This conference to-day is national rather than international, and by its very nature it must deal with the face of things, but I do not think that is a bad approach. After all, just as black smoke is a symptom of imperfect combustion, so in fact most kinds of industrial waste are symptoms of an economic maladjustment or unease which is below the surface. I think you can very often tell from the appearance of a face whether in fact there is something far more fundamentally wrong with the being.

We begin this morning with a paper from Mr. S. A. Sadler Forster. He and I were active in the early days of what were then called 'the special areas', when he was one of the essential cogs in that machine and in the Board of Trade. Since then he has become Chairman of the North Eastern Trading Estates, which has transformed very considerable areas in County Durham from their original hopeless state into one where people are looking forward with new confidence and are busy creating new values. It is he and his colleagues who see to it that what Mr. Duncan Sandys sought, a measure of beauty and charm, is still somehow created out of the sheer economic necessities of that region.

MR. S. A. SADLER FORSTER, C.B.E. (Chairman, North Eastern Trading Estates, Ltd., and a member of the North-East Industrial and Development Association): I should like to spend quite a while in telling you of the very considerable contribution Sir William Holford has made to the improvement and development of the distressed areas, but there is not time. At the last Conference I was privileged to say a few words about a particular derelict site at Jarrow which, with the help of Sir William Holford and others, we have turned into something of that beauty to which Mr. Sandys referred this morning—at any rate of industrial beauty—but I am not proposing to talk at any great length nor to produce any more case papers about industrial sites. I am hoping that I may be tempted to say something now and then which is sufficiently controversial to start others in the audience who are expert in these matters to talk and to join issue about certain of the details.

Those of you who attended the last Conference will remember I made the point that it was all very well being interested, as we should be, in improving villages and small urban centres and removing small eyesores here and there (and goodness knows, there are many of them), but that the big problem in Britain lies in the areas on which Britain depends: in the centres of the basic industries of coal, iron and steel. I am very glad indeed that we have the County Planning Officer for Lancashire with us this morning. I do not want to delay what I know is going to be a very interesting paper, with slides showing what Lancashire is attempting and what Lancashire has done.

I always feel when I come to London that the people here think that Britain stops somewhere round about Lincoln. May I remind you that there is a good deal more of Britain north of Lincoln? I say with all the pride of a Northerner—a Yorkshire man—that the more important part of Britain is up there, and you would be in a sad position down here in London if the export industries of the North-East and of Scotland, Lancashire and Yorkshire were not functioning as they are to-day. We depend on them, but because the industrial development of



these older industrial centres was pretty well mishandled in the past in the haste of progress we have a tremendous problem in those areas. It is not one of just a small amendment and alteration here and there, but of removing very considerable accumulations of industrial waste. I do not think in our day and age that it is now so much a question of public taste as of public money. The Chairman referred to the old distressed areas. In 1945 was passed the Distribution of Industry Act, in which Section 5 gives the Treasury power to make grants to Councils and to companies in order to improve and bring back into use derelict land. At the last Conference somebody suggested that it was high time that public-minded people were sufficiently interested in these matters to get something done; and I have the temerity to reply that we were very anxious in these old areas to get something done, and that since the passing of that particular Act hundreds of derelict sites had been surveyed by trading estates companies, by County Councils, by local authorities and other people, but that very little indeed had been done for the simple reason that the money had not been available. We can talk this morning with all the hot air we may like to produce but we have to face the fact that this *is* a matter of money. I read in the paper last night with some sorrow that America was now about to spend £2,500 million on counter-measures to the Russian rocket. This news made me feel that I ought to take the train back to the North-East and not come to this Conference at all; because if we are going to be involved in similar expenditure—and no doubt we shall be—then, difficult as the situation is now, it is going to be well nigh impossible very soon. I am not suggesting that we are wrong to defend ourselves or that we should not try to reach the moon. These are bigger questions than I profess to understand. But if somebody at the Conference will tell me where we are going to get the money from for the clearance of these derelict sites I shall go back with a much lighter heart. I am very glad that the National Coal Board are represented here because I know they are anxious to do a lot more than they can at the moment about the pit heaps in Lancashire, the North-East, and in Scotland, Lanarkshire, and other places. It is no good telling Northerners and Scots that they must educate the people so that they will dislike pit heaps and want to get rid of them. There is not a soul in Lancashire, the North-East or Scotland who does not want to be rid of them to-morrow. What we want to know is what this Conference is going to do. Tell us how we can tackle this problem. I do not want to see plans which show what can be done with a muckshifter. There are enough of us who understand the technical job of moving industrial waste. It is when we come to the question of cost that we need a good deal of advice.

May I just give you one example, a small case paper? We have, in County Durham, Old Washington Hall, one of the earliest residences of the Washington family. It is of very great interest not only to ourselves but to our American cousins. Over the years they have helped very materially in renovating this historic building, and it was opened not so very long ago by the American Ambassador. It is helped financially, as a treasure worth preserving, by the friends of Washington Hall, largely, as I say, financed by the Americans. An American lady who went to see this place some years ago wrote to the Forestry



Commission and asked whether it would be possible to have an avenue of trees ten miles long from Durham to Washington in order that people might pass through beautiful surroundings on their way to the historic treasure. She was appalled by monumental pit heaps adjacent to the Hall. When I hear people in other parts of the country talking about restoring some similar treasure I see it as situated in a very nice park where nothing really detracts from the beauty of the Hall, but where the Hall itself has fallen into decay and wants rebuilding or preserving. But in the case of Washington Hall there are these monumental pit heaps within easy sight. Sir Alfred Bossom spoke earlier about 'high buildings'. We have two twin pit heaps quite near to Washington Hall, one is 170 feet high and the other 140 feet high. At any rate, that was the measurement at the time when the lady from America had a look at them, but the National Coal Board is still using them and they are still on fire, they are still growing and therefore my figures may be wrong. How are we going to remove them? The National Coal Board are doing what they can. They will, no doubt, tell us this morning. They are doing some stowage at certain pits, but I think they will make the point to you this morning, that if they find a way of clearing these heaps in a wholesale manner, it is bound to put up the price of coal. Somebody has got to pay for it.

And so, each time, whoever is concerned—whether it is the National Coal Board, the County Council, or the State under the powers of the Distribution of Industry Acts—we come back to the fact that even if all of us are in earnest about this matter we will find that some form of credit squeeze will prevent us from doing anything on a large scale. This is a very serious matter because I believe that it goes to root of this 'seeking for beauty'. Somebody this morning asked me what kind of a place Durham is: is it a lovely looking county? I told him that he ought to talk to Sir Stephen Tallents, who could tell him that Northumberland and Durham are both very beautiful counties. Only small areas are disfigured by pit heaps. Much of it is agricultural land. But you see, there was a 'seeking after knowledge'! Is Durham the kind of place people would like to live in, is it worth saving, is it worth making more beautiful? May I ask how far we can prevent the position from getting worse? I think if we could achieve something in that field it would be important.

At the last Conference you will remember I referred to an old industry, a chemical industry, moving its works and leaving behind a derelict site, to which the public later returned, took over, and made into a better place. Has not the time come when an industry should be obliged to restore to its original condition land which it has occupied and abandoned? A firm which rents a factory has to bear the cost of dilapidations when it gives up the premises. Should not an industry which occupies land do likewise? Most of these derelict sites, probably the sites which the County Planning Officer this morning will talk about, are sites which industry itself has used and then abandoned, leaving the public to find a way, then or some years later, with public money which it can ill afford and which it may not even be allowed to afford, to put things right.

So there are the two forms of industrial use with which I am concerned this

morning. Firstly, the case where industry has used a site and has then gone away and left it in a state of some disorder. Secondly, where industry is still using the land, but is erecting great heaps of industrial waste of one kind and another in the area which eventually neither it, nor apparently the public, can afford to move. These are big problems and they are not primarily the problems of the greater London area; they are the problems of South Wales, of the Black Country, of Lancashire, Yorkshire, the North-East Coast, the industrial belt of Scotland, to name a few of those areas where the basic industries of the country exist. We want help for the people who live in those areas because it is little good to have fine new garden cities, fine new housing estates, better housing and so on if the people, when they look out of their back windows, have to see these monstrosities of the past which we are apparently powerless to move.

MR. U. AYLMER COATES (County Planning Officer, Lancashire): In Lancashire we do not need a Sputnik to inspect a lunar landscape, all we need to do is to go to the Wigan coalfield.

Land is regarded by many as expendable and the price of civilization's wealth—and an impoverished soil, barren uplands, excavations, colliery spoil heaps, derelict defence works, these remain when man moves on. Quarries, clayholes, sand and gravel pits bite deep into the surface. Industrial tippings, china clay dumps have scarred the face of parts of the countryside, and below ground deep mining has caused the surface to subside, leaving large areas of subsidence flashes and bogs which disfigure and make eyesores of most of the coalfields. Derelict land can be defined as land which has been damaged by surface or underground working to such an extent that it is likely to remain out of beneficial use unless subjected to some special treatment. Extractive industries have already produced, in parts of Lancashire and elsewhere, a degree of dereliction and disfiguration which can only be tackled if the liability is accepted as a public one. Where land is scarce, reclamation of such areas may be an economic necessity as well as an objective in the restoration of amenities.

Our approach in Lancashire to the problems of new land uses is not one of mere preservation at all costs. Planning has the uneasy task of adjudicating in the clash in the use of the countryside, and we accept as an unavoidable course the need to find new uses for much of our land. The test is whether we are sensitive to these new uses; and whether we are equipped to select the best balance. There is often an overriding demand for the exploitation of capital resources, and the countryside is constantly being changed by the works of man. Can this be done without forsaking a benevolent and graceful heritage?

Two million people live in the 1,600 square miles of town and country for which Lancashire County Council is the Planning Authority. In that area we have one-tenth of the dereliction in England and Wales, although we are only one-thirtieth of its area. To the east of Wigan there are 4,000 acres of derelict land. And it is usually in the areas which are least able to afford a remedy that we get most dereliction. At Ince-in-Makerfield, for instance, where the penny rate produces less than £400 a year and where rateability in relation to population

is the lowest in the county if not in the country, 40 per cent of the land in the urban district is derelict. There the County has carried out two pilot schemes with financial assistance from government. We think that is reasonable, because we say there would perhaps be no Lytham St. Annes or Chesham Bois if there had been no Ince-in-Makerfield. So the County as a whole is tackling the operation with a fifty per cent grant from the Exchequer.

The use of modern earth-moving machinery is greatly accelerating encroachment on land by extractive industries, and it is calculated that, left to the ebb and flow of demand, there will be more dereliction in the next twenty years in Lancashire than has occurred in the last 100 years. The value of a reclamation project cannot be reckoned in terms of cost alone. Although in most cases acquisition and clearing would cost something less than £400 per acre, against this must be set the value of the reclaimed land for its new use. The Minister of Housing recognizes that the acquisition and clearing of derelict land and putting it into a use as defined in the development plan is grant-earning. But so far we can really only claim to have done a few pilot schemes. The job needs tackling on a big scale with a great deal more finance behind it. Dr. Wibberly (I think in this room) pointed out some years ago that the cost of replacing the output of an acre of average agricultural land used for development might be equal to an expenditure of about £200 spent elsewhere. So reclamation schemes costing this amount—about £200 per acre—might be defended on grounds of land conservation alone, but expenditure of much more than this is often justified where questions of the community's morale and the restoration of its amenities are involved. If reclamation can only be carried out where economic advantages can be proved, very little, in my view, will be done. The final test is, what is the public prepared to pay for the restoration or the preservation of beauty? The new market value created is invariably less than the cost of the acquisition and engineering works on the land to reclaim it to its new use.

About seven million tons of industrial and domestic waste are still being tipped each year in Lancashire on about 300 acres of land, and much of this is not subject to planning control; for example, the extension of a colliery tip on the same site is not controlled, whereas the creation of new tipping space is subject to control.

We do not think that the only solution is to remove the spoil heaps and push them into the subsidence 'flashes'. Indeed, some of them contain red shale, which is at present being used on the Preston By-Pass—a new motorway under construction. The waste of one century may be the raw material of the next; grey shale is of less economic value at present and the cost of digging it out is about 2s 6d a ton: 1s 6d a ton to move it the first mile and 6d a ton each mile thereafter. So, to dig out and move a cubic yard three miles costs about 5s a ton. Therefore, if you spread two yards in depth on to an acre of ground three miles away, you need about 10,000 cubic yards at about 5s a ton, which amounts to £2,500 and is beyond the unaided means of most local authorities. The answer in many cases might be to shape these spoil-heaps and plant them with trees and grass.

I remember taking my Committee to see the conical heaps known as the 'Three Sisters' near Wigan, on an occasion when it snowed. The landscape looked

rather like a miniature Switzerland, which led us to think that if we could only clothe them and shape them they might not look so bad. I think part of the trouble is the surrounding untidiness and squalor with which these heaps of waste are associated. Judiciously clothed and planted, some of them could give relief in an otherwise flat, dull countryside. But of course many are wasting land which ought to be brought into some productive use.

The powers available to a planning authority for acquisition and clearing are contained in Section 38 (1) of the Town and Country Planning Act, 1947, having first allocated the use of the land in the development plan. It is also possible to acquire by agreement under Section 40 of that Act. Section 89 of the National Parks Act is also useful in the planting and treatment of derelict land for amenity purposes.

The first and essential need is to have an overall plan. Without it the pressing needs of the moment—the creation of sites for industry, for housing, for playing fields and so on—often bedevils the planning approach and land which ought, for example, to be reclaimed from ‘brown belt’ to green belt so as to prevent the coalescence of built-up areas is sometimes reclaimed to become a maze of bricks and mortar. It is most important that the attack on disfigured land should be in accordance with a plan, and I think the time is now ripe for an appraisal of all the criteria; conservation, preservation and beauty, and the sociological, agricultural, economic and financial implications. Why not a government committee to consider the matter?

## DISCUSSION

THE CHAIRMAN: I should like just to recall one or two of the points made in the papers before the discussion begins. I think that Mr. Sadler Forster has already made very strongly the point that this is a question of money. He also suggested—which I think is a very interesting and provocative idea—that as in buildings you have dilapidations to meet at the end of your tenancy, so there ought to be something of a similar kind for all kinds of industrial and land-using projects. The suggestion does mean a tax on initiative. It means that the new industry, or the new agriculture, or whatever it may be, has also got to bear some part of the burden as well as the old industry which is going out. I think that is a point the Conference might like to investigate a little more fully.

Mr. Coates made a very interesting point when he said that this is almost an inevitable process of development in any industrial country. For instance, there is Ince-in-Makerfield (where he said they had 40 per cent of land dereliction at the present time); but he then went on to say that we would not have St. Annes and other more attractive places in Lancashire if it had not been for Ince-in-Makerfield first.

A second point that he made which I think we will find interesting to discuss is this question of trying to dispose of waste; and, where the cost of putting it underground is prohibitive, how it can be dealt with on the surface. Finally, Mr. Coates made a point which I am sure a lot of people here will want to debate, namely, should not reclamation always be part of a really comprehensive scheme? It cannot be done in little bits and pieces without a great deal of unnecessary friction and wrong decisions being taken: for instance, on the preservation of green belt land, which might be cleared at some cost and effort only to be turned over to the wrong kind of building use instead of being preserved as open or recreational space.

In order to get our discussion off to a quick start I am going to call on one or two people to begin. First, Miss Brenda Colvin of the Institute of Landscape Architects.

MISS BRENDA COLVIN (Institute of Landscape Architects): Our attention has been very forcibly drawn to the need to consider economy in all these projects. It is no good making wild suggestions on the assumption that money can be spent for the sake of beauty alone. Our problem is to try to find economic ways of creating a fine landscape as the work goes along. It has already been pointed out that the old pit heaps are a much more difficult problem than those where industry is still working, but certainly where industry is still disposing waste there is a wonderful opportunity of creating mountains, or of using the soil in a way which will fit in with the uses of the land, whatever the surroundings are. This kind of opportunity does exist on a large scale at the present time, and it calls for immense forethought. The first essential is a preliminary overall plan, in which landscape factors are weighed in relation to general land use. I often wonder whether we put too much stress on the idea of removing all the waste heaps. That may not always be the necessary solution. Many waste heaps are already good shapes or could be improved as the work proceeds, and could provide an opportunity for tree planting, as a setting to developed areas on flat ground. The great beauty of the English landscape over the older landscape is the integration of woodland and farms. Present-day trends are to concentrate the forests all in large, isolated areas and provide only flat open space in other, widely separated areas, and it seems to me that the provision of artificial mountains—areas which cannot be used for agriculture or building—gives an opportunity for tree-planting which could be integrated with the open spaces, providing shelter and background, and that well-timbered appearance so lacking in much new development.

THE RIGHT HONBLE. LORD HURCOMB, G.C.B., K.B.E. (President, Society for the Promotion of Nature Reserves and Vice-President, International Union for the Conservation of Nature): I should like to make one point following on what the last speaker just said. I was very interested in the slides of these colliery slag heaps and particularly of the pools made by subsidence. No doubt they are costly to remove, but there are a few cases where the proper use of these flashes may be to keep them as local nature reserves which would add to the amenities of the district and also be of value to the universities and the teachers of natural history subjects in the neighbourhood. There are instances of such use. The Alvescot pools in Warwickshire are one, and there are others further north. I think it would be worth while for the County Planning Officers to bear that possibility in mind.

From the general point of view of nature conservation we are in favour of the proper use of land and favour the restoration of these derelict sites, if only for the reason that it will reduce the enormous pressure which is being exerted by the demands of housing and industry to move further out and spoil more and more of the country. The International Union for the Conservation of Nature and Natural Resources met in Edinburgh eighteen months ago and there was presented to it a series of papers, by naturalists and by engineers and practical people, upon what might be done and what, in fact, is being done, here and in other countries to avoid the permanent defacement of the countryside by mining and other industrial activities. These papers have been published and the Chairman has referred to them. Once it is realized that those who make profits from despoliation, and those who enjoy the benefits of what they produce, ought to find the cost of making good their interference with the interests of the community as a whole, the financial problem should not be insurmountable. We must get to the stage of realizing that we cannot have the whole country spoilt by extravagant and ill-balanced use of land.

THE RIGHT HONBLE. LORD LATHAM, J.P. (a Member of Council of the Society): May I ask Mr. Coates whether, apart from what I gather to be powers of control of



spoil heaps under legislation passed in 1948, there are any other adequate and effective powers to prevent the creation of new derelict areas? Also, where an area is derelict and has been abandoned, and the local authority reclaims the land, who becomes the owner of the reclaimed site?

MR. COATES: There are adequate powers available when granting consent to new industrial development which enable the imposition of conditions designed to prevent further dereliction. For example, a mineral operator might be required to restore one area when worked out before starting the second phase of his operation. In this way, instead of getting a large patchy area you get one part in use and then restored, the process travelling through the whole operation.

A new colliery (near Newton-le-Willows) is now being sunk in Lancashire, the first for thirty-five years, and a whole set of conditions control the operation. These limit the area which can be worked underground so as not to cause subsidence of the surface beneath hospitals, housing estates, sewers and so on, and they also control the appearance and design of the surface buildings and structures. The site for tipping is limited to what will be used in about the first fourteen years. Thereafter the intention is that spoil will be carted further away to fill in hollows. By then back-stowage may have become practicable.

LORD LATHAM: Would these powers cover the poisoning of the soil by chemicals, which is a continuous process? It is not done at any particular time, it is a continuous process.

MR. COATES: This is partly a public health matter. A Planning Authority can approve an application for development with or without conditions, and as long as the conditions are related to the development proposed, including land in the same ownership, there is nothing against delimiting the area on which waste is deposited. That is what will happen in the case of the new Parkside Colliery near Newton-le-Willows. There is a limited area in which the N.C.B. may deposit spoil; the corollary is that after that area is used up some of the flashes are filled in. On the question of colliery flashes, not all of them need to be filled in. Some have successful angling clubs using them and in some areas the flashes serve as reservoirs and control surface run-off. The other point is the question of ownership after reclamation. In cases of old dereliction we have bought the land and cleared it. When the Ministry have sanctioned acquisition and clearing they have given us a fifty per cent grant in all cases except those carried out under the National Park Act outside Park areas. Having cleared the land we can sell it. But for new development, dereliction is prevented by conditions imposed on the planning consent and the land usually remains with the owner. In practice both the Skelmersdale and the Whalleys Basin schemes will be sold by the County Council to the local council for use in accordance with the Plan. They get for about £200 per acre what has cost about £400 per acre to create, and it is that deficit which is borne by the County with a government grant. A point I would like to emphasize is that it is generally only the County, even with government help, who can bear this deficit which is often beyond the means of a small district council.

LORD LATHAM: It is, of course, very important to the local authority what price they pay for abandoned derelict land on which they themselves have to spend considerable sums for reclamation.

THE CHAIRMAN: This is a very important point. In order to give Mr. Coates a rest I should like to call upon other speakers to give their views.

LIEUTENANT-COLONEL J. R. OXENHAM: Mr. Coates has told us of the magnificent work being done in Lancashire. How gratifying it is to think that we have really come



a very long way in the last ten years towards establishing reclamation as a salient feature of planning policy. There are many local planning authorities in the country now employing their resources and tackling various aspects of the work. For instance, Mr. Arthur Bates of the West Riding has even persuaded the National Coal Board to start dealing with their exempted spoil heaps. Up to the present time over 10,000 acres have been reclaimed, of which some 6,000 acres have been restored in the Midlands. The Black Country, of course, is the place where the pioneering reclamation work was done. Another encouraging feature during the last ten years was the placing on the Statute Book of the Mineral Workings Act of 1951, which has already resulted in some 1,300 acres of ironstone dereliction being reclaimed at a cost of less than £100 an acre.

The Ministry have recently issued Technical Memorandum No. 7, which asks local planning authorities to include in their Development Plans a good deal of factual information about derelict land and, what is perhaps more important—it asks local authorities to prepare a programme for reclamation work. Therefore within a few years we should have a fully documented survey of dereliction and also a timetable for reclamation may be operative. We must remember too that the universities have now become interested—I sometimes think that derelict land has become the favourite topic for a thesis in the planning schools these days! That is all to the good because it shows that the younger people are enthusiastic about reclamation. A lot of research is also being done on pioneer vegetation, such as the well known work of Dr. Rees at Birmingham University. But above all, I think there are signs that the large industrialists themselves are voluntarily thinking of restoration, and there is no doubt that if restoration is planned at the same time as extraction, the whole operation becomes a continuous process and it is immensely cheaper.

I cannot help contrasting all this with the situation ten years ago, when I made the first estimate of the amount of derelict land in England and Wales. My conservative estimate of 120,000 acres was scoffed at as an exaggeration, and dereliction was accepted with resignation by many people as the inevitable concomitant of industrial prosperity. It was said to be quite impracticable to suggest reclamation of large spoil heaps and marlholes or to expect vegetation to grow on their sterile and acid surfaces. Now we find from the returns of local planning authorities which were compiled by the Ministry in 1955 that there are at least 126,000 acres of derelict land in England and Wales. Furthermore, it is now generally accepted that we have the equipment to accomplish any reclamation task, if only we have the will to undertake it. Even where the cost of employing earth-moving equipment is prohibitive or unjustified, we can always apply amenity treatment at a very reasonable cost. Another thought which occurs to me is that when one sees the enormous reclamation tasks which have been tackled in other countries abroad, we must feel that in comparison we have a rather insignificant task in this country. I am thinking of what Holland has done, of the T.V.A. scheme in America, the devastated hills of Syria and Israel and the enormous sand mounds of Johannesburg. After seeing those, our problems appear very much scaled down and they should lose all their terrors.

All the causes of past dereliction are still with us, and land will continue to be disfigured, probably at a rate of at least 3,000 acres a year. However, the proportion becoming derelict will be less in future than it was in the years before planning control because the conditions now attached to planning permissions usually specify the practicable measures of restoration which must be observed. There was a point raised about the value of reclaiming land, and perhaps very little reclamation can be justified if judged only in terms of the market value of reclaimed land. But as Professor Dudley Stamp pointed out in this room, in a paper read in 1951—the cost of reclamation of the Zuyder Zee was more than four times the market value of the land reclaimed—and the Dutch considered it to be well worth while. So I hope we will also take into account, firstly, the benefit to the Nation in terms of land

conservation and secondly, the benefit to each community in the vast improvement of local amenities.

MR. E. H. DOUBLEDAY (County Planning Officer for Hertfordshire, and Chairman, Research Committee, Town Planning Institute): There is just one point made by the Chairman, and following up what Colonel Oxenham has said, that I would like to touch upon. I understood the Chairman to say that, in new enterprises, the cost of restoration fell as a heavy burden upon the person who was taking the initiative. Well, that may be so when you are removing a big colliery spoil-heap or something like that, but when you are dealing with a new venture, such as minerals, it is not quite true. It is my experience that if you get to grips with the person who wants to extract the mineral and you tell him before the permission is granted, but while the conditions are being negotiated, all about the afterworking use of the land, that is the crux of the whole thing. He knows then that the whole of his restoration operations have to be directed towards returning the land to agriculture, or in some cases towards putting it back into the condition where building development can take place. The value of this to the industrialist is that if he knows at the outset what he has got to do, he can gear his operations, and in the tax years available to him he can so programme his restoration that the cost of putting it back does not fall upon the industry itself, but upon rebate of tax and therefore upon the general taxpayers. I have had that point put to me as being one of the beneficial effects of the present system of Town and Country Planning Control, whereby an industrialist knows right at the start that he can in fact get all the cost of reclamation out of the tax system.

The second point I want to make is on this question of dereliction near large urban areas. I believe that controlled tipping is the thing which will change the face of many of the derelict areas, particularly the pits. In Hertfordshire, the rate of extraction of sand and gravel is really enormous, and for refuse every three months we have to provide tipping space to the equivalent capacity of Earls Court. That will tell you the enormous amount of waste that has to be accommodated somewhere from a large place like the metropolis. And that includes our own tipping as well. By means of controlled tipping alone I believe we shall rid ourselves of an enormous amount of dereliction in a very few years.

THE CHAIRMAN: Mr. Doubleday was speaking, I think, not only as County Planning Officer for Hertfordshire, but as Chairman of the Research Committee of the Town Planning Institute, which has done a good deal of work on this. When I said that in fact it is a tax equally on those who do the clearance and on those who exploit the land afresh, I was thinking very much more of *new* industry. Here, of course, the new owners have to clear away the remains—sometimes physical foundations, sometimes waste, sometimes chemical spoil heaps—from their site before they can build.

MR. RICHARD EDMONDS (Chairman, Town Planning Committee, London County Council): First, I should like to deal with the question of the fringe areas of dereliction, and I hope that anyone who comes from South Wales will forgive someone from London discussing that problem. I was born in the Eastern Valleys of South Wales containing the towns of Pontypool, Abersychan, and Blaenavon. This is a typical fringe area. In the Eastern Valleys in the last century the ironmasters and engineers came in and the pits were sunk. Now that development led to the river Sychan being blackened and to slag heaps rising right in the heart of the villages. This Eastern Valley is on the absolute fringe of the Welsh area of dereliction. It lies south of Brecon and the Beacons, and if you climb the hill above Abersychan you look down on the plains of Govilon and the line of the Usk and you look back towards Brecon. If money is the key to this problem then priorities have to be regarded, and I hope that the Conference will give some special regard to the reclamation of the

fringe areas, where one is getting the most positive good for one's money by replanning them and removing the evils of the past.

I agree with our friends from the North that this is not essentially a London matter we are dealing with to-day, but I also hope that in the great cities we will deal with the question of railway land, because here in London, both spreading out from Paddington, and spreading north into St. Pancras, is a vast network of railways which does make urban planning extremely difficult. The last century spread a great railway blight over our town, and I would hope that in a very short while there could be high level discussions between the railway authorities, the planning authorities and the Minister concerned. Finally, I should like to refer to a small matter in London concerned with subsidence, which has been dealt with at some speed and which I do not think the public has properly noticed. An Act of Parliament was brought in to deal with the situation arising from the Woolwich subsidences—a honeycomb of chalk workings that lay below the borough of Woolwich. At one time it seemed that that was going to be extremely difficult to tackle. Houses were falling down or becoming completely derelict, and it seemed that a whole area of many acres in South-East London was doomed. I am glad to say that a very large part of that area has now been reclaimed through pumping ash into the workings, which have been largely sealed off. It has been an immense task, done completely unseen, and if anyone here is interested in what has been done, I am sure the London County Council would be very happy to discuss this with them.

THE CHAIRMAN: It shows how indivisible town and country are, when we have the Chairman of the Town Planning Committee of the London County Council talking to us about the problem of subsidence.

MR. L. N. FRASER (Deputy County Planning Adviser, Essex): I wish to say something about the new and the old. First, the very topical subject of nuclear power stations: sites for some six have been found in the country, and there has been some discussion as to why they cannot be located in the old worked out coal areas. Quite apart from the White Paper policy of putting them far from concentrations of people (which I think is a passing phase in spite of Windscale), are these difficulties insurmountable?

The two difficulties I know myself are, first of all, that you have to have very good foundations, and if you think of trying to put a nuclear power station in the worked portion of the Wigan coalfield it might appear impossible because of the old workings there; but is that in fact true? There is plenty of land in that South Lancashire area which is not honeycombed with workings underneath and which has got spoil on it.

The second consideration is cooling water. The nuclear power stations require a much higher rate of cooling than the ordinary coal- and oil-fired stations. As I understand it, at the present time it is impossible to cool water for a nuclear power station by means of cooling towers; but one day it may well be possible. I want to ask Mr. Sadler Forster and Mr. Coates one question. What would be the attitude of the Lancashire County Council and of the north-eastern areas of the country to having nuclear power stations located in the old worked out coalfields?

The second point is that the problem as I understand it in Lancashire is vast. Reclaim land for an urban use if possible. Mr. Coates made that point for houses or playing fields. Is it possible to reclaim it to agricultural use? Apparently at the moment the Ministry do not accept that that is a planning function. The real issue Mr. Coates touched on was the green belt which he wants to create out of the brown belts between those towns of South Lancashire. Of course, the cost of restoring will not be recouped if it remains green belt. It may even not be of value to agriculture, but I think even covering these spoil-heaps with grass is a tremendous gain visually, and there will be less dust in the summer. The houses near these spoil-heaps

are nearly impossible to live in. In the winter there is tremendous erosion on them. Does Mr. Coates consider there is any possible scope in Lancashire for County Councils, District Councils and County Boroughs buying the brown belt, making it green, even if it is only to the extent of growing grass and trees on it—for the County retaining it as a green belt on the lines of the metropolitan green belt which is maintained in that way?

THE CHAIRMAN: Large issues are crowding on us. Mr. Edmonds has brought up railways and Mr. Fraser has brought up nuclear power stations. I am going to remain a strictly impartial chairman, and I am not going to offer an opinion even as a member elect of the new Central Electricity Board. I am going to leave it to our two speakers to answer, but one thing I should like to say to Mr. Fraser. A great deal of work is being done on this problem, for example on the dry cooling towers; and it is not by any means certain that we shall always have to place our large nuclear power stations on estuaries.

MR. SADLER FORSTER: I am not an expert on atomic energy, but if I understand the public representations which have been made in the North-East, the people up there would rather like to have had one of these power stations. The reason why we do not get one may be governed by the fact that we have coalfields and have our local source of power. It may be the view of the Electricity Board and the Atomic Energy Board that it is better to spread around the country the old and the new sources of power. All I can say in addition is that if we are not getting one of these atomic energy stations we are in fact building them. There is a further contribution from the old industrial areas to the new. The Nuclear Power Plant Company (a group of Tyneside and North-East firms) is building the Bradwell Atomic Energy Station, and if I understand the drawings which have appeared in the Press, it looks as though it will be a very fine industrial project, which will fit into the landscape.

MR. COATES: North-East Lancashire Development Committee, which functions in an area scheduled a Development Area, asked for a nuclear power station. At the present time the consumption of water for such stations runs into several millions of gallons a day and coastal or estuarial sites seem the obvious choice. In North-East Lancashire one would be welcomed as a means of diversifying the existing industry and it might also improve the appearance of a derelict area.

I see no reasons why land should not be reclaimed to agriculture. Section 5 of the Town and Country Planning Act permits the allocation of land for a variety of uses such as housing, industry and agriculture. This is a different thing from saying you can control agricultural buildings through ordinary development control procedure. They are exempt except in a few cases where there are Special Orders under Article 4 of the General Development Order 1950.

I agree you cannot reclaim under the Town and Country Planning Act (as distinct from Section 89 of the National Parks Act) merely to make an area look more beautiful. But you can purchase and clear land for the purpose of bringing it into a use defined by the Development Plan, and this may incidentally enhance the appearance of the area.

An issue of policy arises on the question of public ownership of large areas of land. In the North Makerfield town map, to the east of Wigan, which is now being drawn up for submission to the Ministry, the Lancashire County Planning Committee has already approved the designation of about 400 acres of derelict land for reclamation to specific uses as defined in the Map.

MR. J. R. ATKINSON (Durham County Planning Department): I represent Durham County Council. Mr. Sadler Forster referred several times to Durham, and I want to rise to one or two of his points.

First he asked what was being done about existing derelict areas, and secondly what could be done to prevent future problems of this kind getting out of hand. On the first point: the Durham County Council first took to planting pit heaps some thirty years ago, in 1928 to be exact, when it planted an area near Durham City very successfully. In the inter-war years, about 1936-7, the South-West Durham Improvement Association planted about five or six heaps in the south-western part of the county, and to-day one would not realize that they were originally just heaps of shale. The County Council has, in the last three or four years, been carrying on this work and has now planted something like 100 acres of pit heaps. So this is perhaps the easiest part of our problem. It is relatively inexpensive. We pay something less than £40 per acre all in, that is planting, labour, fencing and all the rest, and for a relatively modest sum (something of the order of £3,000) we hope to plant 50 or 60 acres each year. That is being done and will go on being done. More difficult is the problem of large waste heaps in or near urban areas, heaps which obviously ought to be reclaimed for productive use, such as housing or industry. Here I would congratulate Mr. Coates on having completed the reclamation of two such areas. We have been talking about one area of 30 acres for the last four years, and for one reason or another the job is still not done.

Another difficult problem, which may or may not be peculiar to Durham, is this: in the western parts of the county we have a number of villages which have outlived their usefulness and from which people have moved. As the buildings come down we are increasingly left with concrete slabs and foundations which nobody wants to move. In five or six years time this is going to present us with a formidable problem. I think Mr. Sadler Forster put his finger on the crux of the matter when he said that it was a problem of cost. If we had the money—we have got the machinery, we have got the know-how—we could do this work. I think it is going to be even more difficult in future to get the money because of the suggested merging of the planning grant into the general grant. It is one thing to do a job and get a 50 per cent grant for it, it is another thing to do the job and then fight your County Council for an allocation from the general grant.

Now for future problems. We have come to the conclusion that underground stowage is not, at least in Durham, likely to be the complete answer to the problem. The layout of the old pits and the method of working is such that you cannot technically keep the stuff underground, it has got to come up. A few years ago we came up against this legal argument which Mr. Coates mentioned: what is a 'site'? What are the rights of the Coal Board? What needs planning permission and what does not? To avoid legal battles with the Coal Board we decided it would be more profitable to bypass these arguments about 'sites' and get together to try to work out sound technical solutions to the problem. After some two or three years of argument and discussion with the Board, and work on a number of pilot schemes to see what could be done, at what cost, what was acceptable to the County Council from an amenity point of view and to the Board from the technical point of view, we have, in this last month, concluded a very good agreement about future operations, with reference to existing tips and to future tips. It includes agreement about soil stripping, about the basic shapes of tips and the method of merging them into the landscape, resoiling after completion, and even tree planting in some cases. The Board realizes that this will cost them something, but it happens that Dr. Reid, the new Chairman of the Divisional Board, is very keen on this tidying-up operation.

MISS J. F. ADBURGHAM: Mr. Sadler Forster spoke with what seemed to be astonishing confidence about the atomic stations satisfactorily taking their place in the landscape. In point of fact I believe the situation is that, at the present time, the President of the Institute of Landscape Architects has been commissioned to prepare a landscaping scheme for the Bradwell site at the instigation of Essex County Council. Already,



therefore, at least certain authorities concerned with atomic energy appreciate that specially prepared landscaping is called for, and that it is imperative that plans for landscaping should be drawn up at an early date and preparation made. I think it is vital to mention that point, and as the President, Miss Sylvia Crowe, is here in person, it would be a great advantage to the Conference if she could tell us something about her terms of reference.

MISS SYLVIA CROWE (President, Institute of Landscape Architects): If I may correct one slight misapprehension—I have not been retained by the authority responsible for atomic energy. My advice is being asked by Essex County Council planning authorities, and my strict terms of reference were to see what could be done to lessen the effect, not of the quite magnificent atomic pile, but of the ten-odd acres of transformer gear which is going to stand up 45 feet somewhere behind the atomic pile. This draws attention to the fallacy of the idea that big industry, particularly atomic industry, can be dumped down in the landscape and that automatically it will be a magnificent shape, with the landscape flowing up to it. You have your transformer gear, you have two transmission lines, you have a large area round the atomic pile itself surrounded by a security fence, you have all the paraphernalia of car parks, and I think that reinforces the suggestion made that, where possible, the new atomic stations or any other similar concerns should be used to regenerate the existing waste land instead of, as at present, being put down in the position where they are likely to create new industrial waste land.

The other point which I think is extremely important is that there should be an over-all conception both of the areas which we have got to bring back from dereliction and of the new areas where industry is coming, because at present it is simply a piecemeal view. There are different authorities working on their own particular constructions, and there is only the hard-worked County Planning Authorities who can even attempt to bring the different constructions together into one landscape. In this connection we should study again the T.V.A. and Holland, where they get all their technicians, their agriculturalists, their foresters, their landscape architects, and all the rest working together so that they produce a complete landscape both from the economic and visual points of view.

MR. J. C. HOLLIDAY (Kent County Planning Department): I should like to put in a plea for looking at this whole question in its broadest landscape aspect, in other words, looking at the prospects of reclamation. Much of the discussion has been concerned with technicalities, with what can be achieved now, and I can best convey what I mean by referring to *Counter-Attack*, which the *Architectural Review* published, and which I am sure you are all acquainted with, where, in their efforts to put over not only architectural but landscape matters, they have classified urban and rural landscapes into types. When considering reclamation it is very important to consider our landscapes also as fundamental types, either agricultural or (in the North) old industrial areas. I do not think it is desirable, even if it were possible from the point of view of cost, to try and restore our old northern industrial landscapes to southern agricultural landscapes. As long as there are basic supporting industries they must remain industrial landscapes, and I should like to put in a plea for looking at this problem in its historical context, if I can put it that way. I think there is a lot of value in what we now regard as muck in the northern counties. In 100 years people will wish we had kept a lot of the colliery rows. They are not all so substandard that they could not be improved; many of the pit heaps are not smoky, burning and dusty. They could be left in their original shapes as monuments to a past, and planted. I think Washington Hall has got to take its place with Washington tip, although I believe Washington tip is disappearing at the moment! People in the future may be glad to see the nineteenth-century industrial town as it was, with the associated squalor gone: villages having none of the squalor which is now associated



with coal mining. I think that is a question of an attitude of mind, it is the spirit which is affected, not the eye. The shape of many of these tips is very attractive.

By taking a long-term attitude (I know it is difficult because much of the squalor is still with us to-day) we can avoid a lot of the enormous cost which Mr. Sadler Forster suggested was inevitable in dealing with these landscapes.

MR. W. M. WHITEMAN: What I have to say may seem a very small thing in relation to these vast areas of industrial dereliction we have been told about, but it does follow on what was said about the fringe areas and it gets a particularly good return on the effort.

In many rural districts there are local areas of spoliation from old sand pits, quarries, clay pits and the like. I should like to draw attention to the value of caravan sites in these conditions. On the one hand there are these spots which nobody wants, which are economically valueless, and on the other we have an enormous number of caravans looking for land, preferably land which nobody else wants. This is not just an idle theory. We have had some very successful caravan sites made out of old quarries and chalk pits and places like that; for example there is one on the outskirts of Bath and another on the outskirts of Buxton. They are quite unobtrusive, they are interesting projects for a landscape architect, and they produce the type of site which is likely to look after itself. Why not investigate this possibility further? I think that to clear up the small areas of spoliation in the middle of rural areas is, in its way, just as profitable as an attack on major industrial areas.

MR. P. A. BARNES (Secretary, Lancashire Branch, Council for the Preservation of Rural England): One of the recent speakers suggested that South Lancashire might be a suitable place for an atomic power station; somebody else said that we should retain our spoil heaps because they are interesting historical monuments and the future inhabitants of Lancashire may be grateful for them. I come from Lancashire and I feel that the industrial dereliction that we have inherited is something which must be cleared away. It is a 'national debt' and not the responsibility of Lancashire alone to clear it away. We hear the word 'national' a good deal these days, and it is the National Coal Board which is responsible for much of the dereliction which is still going on to-day. It is in the nation's interest that the industrial areas where so many of our people live should be made civilized. After all, people matter most in all our planning.

My own view is that there is a lot of good sense in the policy of siting atomic power stations where there are few people until we know for certain that there is no noxious effect from their proximity. The Windscale accident has proved the need for that. I understand that it was as the result of error on the part of some technician that the poisonous material escaped. Human errors might also occur in the operation of some future atomic power station. In Lancashire there are 5½ million people, and I suggest that it is not the place to put anything of this kind until we know quite definitely that it cannot become a danger to public health.

Then there is this plea for leaving colliery pit heaps as historic monuments. The people of Lancashire don't look at their spoil heaps to-day as historic monuments. They think they are ugly and they see all too much of them from their homes and workplaces. I can think of one little town in Lancashire where 100 acres of such derelict land lie all round the houses where the people live. It is black shale; it has a few puddles; it has a little sour grass and nothing else. That is something which must be cleared away if we really believe in town planning for the benefit of the people.

What is happening to South Lancashire's green belt? In South Lancashire we have been talking about a green belt for fifty years, and now at long last we are seeing it precisely defined. It is now only possible to save narrow green strips or wedges, and when these have been saved from unsuitable industry or housing development, is it

only to sacrifice them to the electricity authority? At present every green belt in South Lancashire is the convenient channel along which the electricity authority wants to carry its overhead lines, and the only sure and certain way of preventing these overhead lines is to cover the land with houses. Perhaps we must accept the high voltage lines as necessary evils for the present, but all the other minor distribution lines now go the same way—down the green belt. Green belts are not going to be worth very much aesthetically to the people of Lancashire if they are going to become a forest of poles and pylons.

I think the C.P.R.E. generally much regrets one step taken by this Government a year ago, and that was the drastic reduction of the National Land Fund from sixty million to ten million pounds. What a fillip it would have been to planning all over the country, if instead of reducing this Fund the Government had introduced legislation to enable it to be used wherever practical help is needed to re-create or preserve a decent and pleasant England!

MR. NOEL GEE: May I say a word on behalf of the Coal Board? Mr. Barnes spoke about costs which should be carried by the nation, and I think earlier speakers raised this point about the great cost either of removing soil to a distance or spreading it not very high over a large acreage. We have not got very far up to now with looking at the technique of removing it underground. But if some measure of the cost is to be borne by the industry (and therefore in the end by the consumer of coal), it will in fact be a national cost spread over the country as a whole.

We are, of course, trying to overtake the work of the last 100 or 150 years. I think the only comment I can make is that, as far as we know, there is enough coal in this island at workable depths to allow us to continue for perhaps another four or five hundred years; and therefore there is not only the work of the last 100 years to be overtaken and put right, but we need to make certain that over the next four or five hundred years we do not go on doing the things that have been done in the past. Opencast coal is a subject which has not been mentioned. We have some quite interesting examples, indeed even photographs, of land which on one side of the road has in the past been worked by shallow mining and has now subsided, and is full of pot holes and things of that sort; and land on the other side of the road which has been worked by opencast coalmining and then been put back in a state as good as we can make it. Over the last few years there is evidence that we have learned how to put the land back.

THE CHAIRMAN: No Bank Holiday is complete without a great deal of cleaning up afterwards. No conference on this subject could be complete without something said about litter. I am going to ask Lady Brunner whether she would like to speak on this subject.

LADY BRUNNER (Chairman of the 'Keep Britain Tidy' Group): A great many things that I might have said have been included in a very good article in *The Times* published a day or so ago, and those figures will be in all your minds. We have learned a lot to-day about national responsibility. What I want to talk to you about are individual rights and responsibilities.

Every influence on us as citizens suggests that we have a right to all manner of things: entertainment round the clock, not just at home, but in cars and on 'buses; access to places of beauty and interest; food processed and packaged to give the public a minimum of trouble. We smoke nearly everywhere we gather regardless of whether others present like it (and even in non-smoking carriages we have a jolly good try). We and our children munch and lick and swig wherever we may be, in the street or on the railway station, on the train or in the sports ground. In cars and 'buses we whizz about on outings, and wherever we go, in lay-bys, in fields, on the beaches, we feel, in a mildly arrogant and independent fashion, that this is what we have

a right to. We are paying our way, and there should be grateful people on all sides pleased to have our custom. And if we do leave a trail of nastiness as we go there is always the crowning merit of providing jobs for litter picker-uppers.

*The Times* gave us the astronomical cost of what this means to local authorities in collecting litter. We should remember this morning that if we expect other people to pick up our litter we should not grudge the Coal Board labour and costs to remove slag heaps. Do local authorities, anyhow, find it easy to find the dustmen to pick up our litter, and would the person who so self-righteously provides jobs for them like to do this very horrible job him- or her-self?

Perhaps litter reflects a national state of mind. Could it be that we are a little unsure of ourselves and have to disguise a slight inferiority complex? How busily and anxiously we keep posing the big questions—are we a first class power, have we satellites, sputniks, bombs, rockets?

We have survived the first half of this century with a standard of living that would have astounded the Victorians no less than the scientific feats of the last fifty years. On Monday morning I was walking down the Tottenham Court Road, which in my childhood was our village street. There you can see the whole cycle of litter if you remember what the shops used to be like fifty years ago. Then the windows were full of goods, naked and unashamed: no wrappings, but piles of everything, slabs of bar chocolate, sugar, biscuits in mounds, sticky mountains of dates. Unwrapped sweets in paper bags went into one's pocket, so that by the time the sweets were finished, because the bag had stuck to them you had probably consumed the bag as well. Now you look at the shop window, and there is one arid waste of cardboard and wrapping. Every window is now trying to attract custom, not with the thing itself, but with eye-catching packaging involving often three layers of disposable refuse. Fifty years ago when the Royal Blue 'bus went from Tottenham Court Road to Camden Hill the travellers on it were far fewer (perhaps in a whole day as many as travelled in an hour last Monday), and the tickets were very often collected by children because they were such delightful collector's pieces. (No child would think of collecting the tickets we get on a 'bus to-day.) And as for eating, sweet-sucking, smoking and swigging, the children of the gently nurtured, whatever their primeval yearnings, would not have dared to so indulge in the street, and alas! for all the other Londoners in those days the prices of sweets, cigarettes and fancy goods, cheap as they seem to us to-day, were outside their budgets. There was only enough for a strong glass of beer for dad and mum at the local pub, which involved nothing but the tap and the glass. And on the whole people stayed in their homes. Strictness of upbringing, prudence or poverty dictated a national self-discipline, and as far as litter went there was not so very much left to go, for cellophane was unknown, silver paper expensive and hygiene not tremendously fashionable.

Rights and privileges, duties and responsibilities—if we could be a nation that balanced one with the other, what a very great nation we should be. If we concentrated on achieving such a balance instead of projecting humanity, with all its problems still unsolved, into outer space and on to other planets, how much better, more sensible and hopeful things in general would be; because as far as I can see, soon we may have to keep the moon as well as Britain tidy.

The problem of litter can only be solved by people caring and thinking about leaving pleasantness and beauty in their wake. Public opinion is important. The 'Keep Britain Tidy' Group is a body which has many organizations represented on it; several of them I think are here to-day. The Group embraces all age groups and very varied interests and is having some effect in leading public opinion.

The Press and the B.B.C. have given a good deal of publicity to the problem of rousing individual conscience in the matter of litter. The collection and the disposal of litter will be an ever increasing problem and expense until we all, as citizens, have reduced its dimensions.

Any discussion which hopes to find new, more efficient ways of contending with litter or the state of mind which produces it, must be of use, though this morning I realize the type of 'litter' under consideration is of a rather different kind to that which concerns the 'Keep Britain Tidy' Group.

THE CHAIRMAN: What I should like to do now, very briefly, is to pinpoint some of the issues which came up at this discussion.

Two important attitudes of mind have emerged. The first is that there is not very much good in saying to people who create industrial disfigurement and other spoliation, 'Go away, we do not want you, we are in opposition to you for ever and ever.' That is not a practical or possible line to take beyond the first stage when one wants to make an awful fuss in order to make people sit up and take notice. (And I assume that that was the purpose of the first Conference.) But after that stage one has to say to the people who are exploiting land and mineral resources, hydro-electric power, coal and all other things in this category, 'The measure of your responsibility is the measure of your resources. We are going to ask you, if you are building even larger atomic power stations in place of what are called conventional power stations, to take correspondingly greater care to create an amenity where you build.' This Conference suggests that we should also say 'Look at both problems together: we expect you, while you are creating such an enormous asset to the country by way of production, at the same time to create as much of an asset as you can in terms of interest, of invention, of that pleasantness which we loosely call "amenity".'

The second thing that seems fairly clear is that there are at least two answers to most of the reclamation problems. I have been fascinated this morning as speaker after speaker has suggested on one side or the other of the watershed how particular problems could be dealt with. The first class of problems seemed to be being dealt with by actual clearance, by stowing away rubbish—disposing of it, or propping it up, as Mr. Edmonds told us, in the case of Woolwich. That is not always possible. It is not always cheap to do, but obviously, as Mr. Barnes underlined, it has got to be done and on a much more national scale than in the past. Nevertheless we have heard, from Mr. Doubleday and Mr. Coates and many others, of the powers that exist; enterprising local authorities are using them more and more—the Mineral Workings Act, the Town and Country Planning Act and so on—in order to bring home the necessity of spending money on disposal and on clearance. For the country as a whole it is the larger economy that matters in the end, not the immediate balance sheet which has to come before the Board at the end of the financial year.

The second way seems to be to accept the physical results of disfigurement, admitting that these things are to a certain extent inevitable, and dealing with them in one of three ways. We can go on exploiting—I think it was Colonel Oxenham who mentioned the mine dumps in Johannesburg. These, having been the spoil of the earlier gold mining process, are now being searched very closely for uranium. There is an instance where the old spoil heap has become a new treasure heap. There are also instances where camouflage and what you might call broadly ecological restoration is the obvious answer. You can do many things with the results of industrial exploitation of land which are quite tolerable, and some even pleasant. Lastly, you go can further still and make a virtue out of them. That needs a great deal of ingenuity and initiative, but Lord Hurcomb pointed out a small one: the study areas provided by colliery flashes. These can be used for the observation of bird life and plant life, for fishing and (as Mr. Whiteman mentioned) for caravan sites; most certainly for the planting of trees. I will not attempt to summarize the points that were made on this subject. I would just like to leave you with the general thought that there are at least two sides to each problem of reclamation.

My last duty as Chairman this morning is to thank the Society for having brought

together so many people with interests in this field, and to thank the speakers themselves for the extraordinary stimulus they have given us.

*A vote of thanks to the principal speakers was carried with acclamation, and the Conference then adjourned for the luncheon interval.*

## THE AFTERNOON

### SECOND SESSION

#### THE SKILFUL ENLARGEMENT OF VILLAGES

*with Sir Stephen Tallents, K.C.M.G., C.B., C.B.E.,  
a Member of Council of the Society and Chairman of  
the Conference Committee, in the Chair*

THE CHAIRMAN: Sir William Holford, when he introduced the first session, questioned his own qualifications to take the Chair, but of course his qualifications were known to all. I had to think about my own qualifications to take the Chair on this very different subject. I have for thirty years lived in a village which has lately had housing added to it. It is surrounded by gravel pits, which I hoped at one time were going to make it a new Lake District comparable to that new Switzerland which we saw illustrated this morning; it has one large dump from a paper mill in sight. The birds have been so forced upon us by building in the neighbourhood that we have become a sort of bird sanctuary; and I always christen such parts as I neglect round the house 'our nature reserves'. Those were the only qualifications I could really summon up in support of my Chairmanship of this afternoon's discussion.

I call upon Mr. Lionel Brett. We are fortunate in having him here. He has wide experience in housing, and he was a member of the Arts Council for several years. Both by heredity and by his own qualifications and experience he is well adapted to treat this subject of village enlargement sympathetically.

THE HONBLE. LIONEL BRETT, F.R.I.B.A. (representing the Royal Institute of British Architects): I should like to begin with my personal approach to this question and the background against which I see it as a problem. England appears in the atlases, as everybody knows, as one of the most thickly populated countries in the world. At the same time it has the highest space standards of, I think, any country in the world. If you put those two things together, a country with uniquely high space standards for each family and a tremendous density of population, you get suburbia following inevitably, as night follows day. If you add to that a country in which every family is very soon going to have a motor car you get the same inevitable diffusion of population. In fact you get the tendency towards a nation-wide English version of Los Angeles, which some of you may have read of lately in Sir Hugh Casson's *Travel Diary*. That is the way things must tend to go, given our physical conditions in this country.

On the other side of the scale—against this—we have an urban tradition; that is to say, most of us still live in towns and we are used to living in towns. In fact, I think most of us still think of England as a green country with red blobs on it,



the red spreading, the green—the innocent green—having to receive more and more red. We are inclined to think of it as a kind of male and female principle, the male town, expansive, modern, scientific, intellectual, noisy, and the female country, with its ancient wisdom and fertility, conservatism, and, of course, beauty.

Given these two things, given these alternatives, I think we are bound to feel, what a hopeless choice! If we choose the first, if we accept scatter, it is defeatism; it is to ignore the effort of will that we have to make if we are not to go under. After all, that scatter is the result of a whole mass of individual people, each doing what he wants to do by instinct or by habit, and yet the whole adding up to a totality that nobody wants. That is a definition of barbarism, and it is a definition of subtopia.

On the other side, to choose the other, to cling to the past, is romanticism; it ignores, to my mind, the essential need to look at the whole of our land area as one estate, and not a kind of Manichean battleground between the forces of light and darkness.

If we do not, and cannot, accept completely either of those destinies, where are we to build? That is the crux.

My proposition is this: that we should now stop building the conventional housing estates, that we should build no more of them. By housing estate I think everybody knows what I mean: I mean that you take a field and you run a road round within a hundred feet of the hedge and you have houses strung round that road on both sides, eight or ten to the acre. There is no need for me to describe it, because that is the normal way in which we house our people. It has had a long run for its money, about fifty years if we include the earliest examples, and I think one's criticism of it can be summed up by saying that it has never looked right in England because it is too standardized and repetitive to have any kind of village character, and yet too fiddling in scale and broken up into small units to deserve the name of a town. Even the best architects have found it almost impossible to do it nicely.

If we are not to house our people any longer in that way, how should they be housed? Here I say that there are four alternative ways in which people may choose to build. The first is urban housing, which nowadays, I suppose, can really take two forms: one is what we call mixed development, with high flats and small terraces and houses among them; and the other a more closely-knit and more traditional type of street development which can achieve very nearly the same density, with narrow, three-storey, terrace houses. That is urban living, a thing we are perfectly accustomed to.

The next kind is what may be called re-created housing; that is to say, the re-birth of our depressing inner ring housing. We cannot evade this question of re-development and re-creation, and in a period when we have less money and more and better techniques we should find ourselves capable of tackling it in an imaginative way.

The third kind, of course, are new towns, of which I do not think I need say anything, except that they should be *towns*.

The fourth kind is village housing. It seems to me, from poring over maps, that there are something like 10,000 villages in England alone whose population could be doubled without their being spoilt, indeed with advantage, if—and of course it is a big 'if'—it were properly done. If we add a hundred people, shall we say, to each of those villages, that is a million people, many more than the whole of the new towns programme.

Now some slides, very quickly, to show you what I mean by this doubling of village populations. First, some air views of villages all over England showing how loose they are. I have not just chosen villages that seem to be particularly scattered, I take villages of various shapes and sizes and show how much they waste land. You can see how they have definite bounds, they are closely planted and you can easily distinguish where the village naturally should begin and end. (Figure 1.)

There is often a lot of orchard, and one does not say that that necessarily should be destroyed, but you can see that along the roads there is a great deal of empty frontage. These villages would be improved by their population being doubled.

Here is a more scattered village, tending to be split into two parts; obviously if the two were linked you could get in quite a lot of houses without going out into the country.

Here is a much larger village, but you see that between the main road and the railway embankment there is what is agriculturally dead ground, which could be filled in without destroying the character of the country; instead of which,



FIGURE 1



FIGURE 2

you see where the council houses are, right outside the natural perimeter of the village.

I have lately been out to my two nearest villages in Oxfordshire, and I show them as random examples; there is no reason to think that they are particularly scattered or particularly tight. Ewelme gives the effect of a unified village when you go and look at it. It is thickly planted with great elms, but you will see how few houses there are and how much could be put into that village without going out into the countryside.

Watlington, next door, is much larger; it is practically a small town, and does have a really urban atmosphere; it has definite streets, and you would think at a glance that it was extremely tightly built up. Actually, from the plan one sees that it is not so very tight, and indeed, from outside you would not know it was there at all. Here is a view of the town from the rise of the Chilterns just outside. There are 2,000 people living among those trees and you would never know they were there. The main street at the same place shows the urban nucleus which is so valuable and makes it such a nice little place to shop in. (Figure 2.) Yet a view from the church tower (Figure 3) gives an astonishing sense of the space there is within the village perimeter, in fact in the geographical centre of the village, not used except for a few very patchy allotments. The new housing is all out on the cornfields on the edge of the village.

Another picture inside Watlington (Figure 4) shows that it is possible for people to put miscellaneous small houses into villages with an extremely cosy,



FIGURE 3



FIGURE 4



FIGURE 5

pedestrian character without their having to be good architecture, or having to be what you might call picturesque rural architecture; they can be as modern as you please, but they will fit in so long as they have a sense of cosiness and enclosure. Compare this, which has happened by accident, with any council housing estate.

This row of modern cottages, also in Oxfordshire, in a very picturesque thatched setting, demonstrates, I think, that it is not necessary to copy any particular kind of rustic style in order to fit in. (Figure 5.)

Nor need one be afraid of colour: a group of barns of all periods, medieval onwards, to my mind shows that you can put your modern stuff into a group of old buildings and make it all the more interesting; and equally, of course, you can put industry into the country and if anything give the country greater drama and grandeur than it had before (Figure 6). So long as you understand landscape and keep everything under control.

Now I think I should come back to the big 'ifs' that I mentioned before the lights went out. The first is a planner's 'if': where are these new village people going to work if they are not going to be agricultural workers? Industrial decentralization is inherent in this kind of housing. It has been the policy of the Government since the war to get industry out of the London area particularly, and out of certain other congested industrial areas, either into new towns or into development areas; and it was always a pious hope that a certain amount of the smaller and lighter industries would go right out into the country and mix



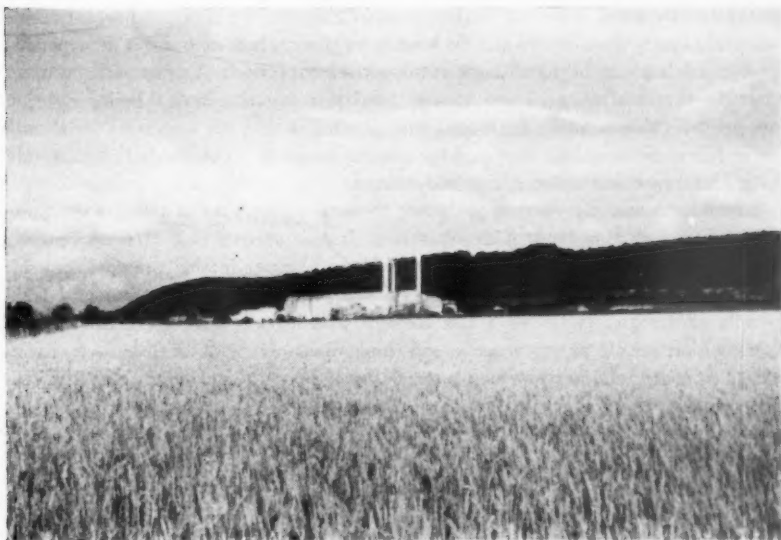


FIGURE 6

with the population of the countryside. This must be part of the programme; we must not lose sight of this intention of spreading our industrial population more evenly over England. After all, we have to think of every worker as quite capable of motoring twenty miles to work in the morning across country lanes and country roads on a motor-cycle or a small car. If you think in those terms you do not have to picture industry and town as closely tied up together on a kind of pushbike scale. There is thus no reason why a great number of these villages should not be useable, and accessible, by industrial workers.

The next 'if', or the next question, is, do we really want to bring industrial workers into the villages—people unaccustomed to country life? We may divide our people into those who like town life and those who are struggling to escape from it. Suburbia largely results from the escapism of large numbers of people with families, keen gardeners and so on. If we can provide for those people what they are really searching for, which is village life with the convenience of motor transport, they will not have to be content with the hybrid life of suburbia. Thus we satisfy a demand, the demand of those individualists who are not content with what I have earlier defined as urban living.

The next and most vital question, of course, is how to prevent the villages from being ruined by this kind of development. Dr. Sharp has studied this subject all his life and I shall listen to what he has to say about it with great interest. But I would, before I hand over to him, like to say two other things, one particular and one general. The particular thing is that tree planting is

essential to this kind of development. We saw just now a town that was entirely concealed by trees. The fact is that trees in England are more important architectural objects than houses are. So long as we plant when we build it is surprising how much we can build without ruining the countryside. In fact, I have often thought that just as a local authority can insist on the drains being right, it ought to be able to insist on trees being planted if they are necessary; it should be in fact conditional on approval for a small house in a village that trees should be planted in certain places, and maintained.

Finally, I must say that we are going to need a new kind of planner if we are to succeed with this kind of development. In this second half of the twentieth century we need a new conception of what a planner is; his prestige and his standing have to alter out of all recognition. We shall need to find and train people of the quality of Nash and Repton, and then to give them the kind of work which people of that quality will think worth doing. The thing is a vicious circle, as everybody knows: which comes first, the man or the job? It is difficult to break a circle of that kind, but break it we must if we are not to spoil the sort of places that I have spoken of, nor condemn them to a slow death as museum pieces.

To sum up, we need what the newspapers would call a 'three-pronged drive'. First, we have got to make our cities and towns fun to live in and then persuade people to go back to them; to restore the status and standing of urban life, so that it ceases to be a thing you run away from. Secondly, we must stop suburbia. Now I do not say that suburbia is always objectionable. 'Arcadia' is a perfectly valid ideal, and I say stop suburbia, not because we object to it in principle, but because we have enough of it already. The third prong is what we have on the programme, the Skilful Enlargement of Villages, a million people housed by the enlargement of villages; and now Thomas Sharp is going to tell us how to do it.

DR. THOMAS SHARP, C.B.E. (Past President, Town Planning Institute, and Institute of Landscape Architects): Lionel Brett has dealt mainly with broad ideas of how people might live in scattered places with the help of the motor-car; and he has suggested that a lot of villages could be enlarged to accommodate a lot more people. Without my necessarily agreeing with everything he has said (though I do, of course, agree with a great deal of it), my part is to speak of the details of village enlargement—of how it can be done skilfully so as not to destroy or seriously injure the villages which are so charming and characteristic a feature of England; how it may be done in ways that may even, sometimes, improve and enhance them.

I may as well say frankly at the beginning that, though I have been interested in village planning for a good long time, I cannot bring to mind at the moment a single example of really skilful village enlargement anywhere in this country; and not merely of substantial enlargement, but even of the addition of just a few houses to meet the needs of present village people. Of course I can't claim to know more than a fraction of all the ten thousand villages and hamlets that there are in England. And there may be a dozen or so examples of good village building

scattered about in various parts. There may be. But if there are I don't know them.

It makes one despair that people cannot do simple things simply and decently any more. For after all it ought not to be a terribly difficult matter to build a few modest houses in a manner that doesn't outrage the essentially simple, almost elementary form that the ordinary village has. Yet what do we almost always get? We get either a scatter of unrelated shacks or villas, or a blob of mere 'housing estate'—scatters and blobs of complicated but at the same time raw suburbia which no one has attempted to relate to the place they have been tacked on to, which look as though they had been picked up one dark night from the edge of

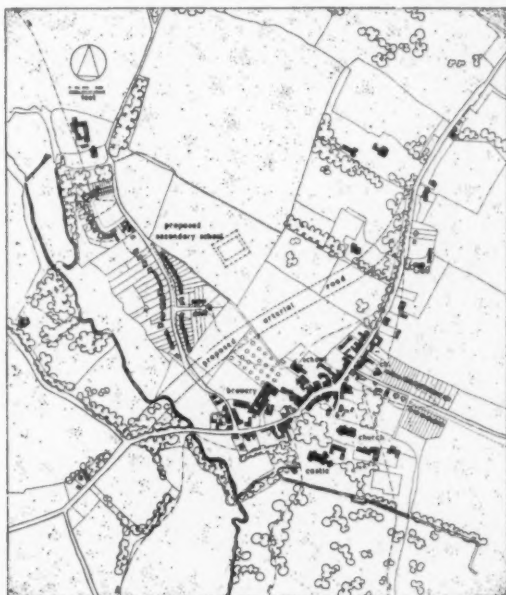


FIGURE 7. *What happened to a village in Kent in the 1930s*

the nearest town and just dumped down regardless in another place. We get semi-detached housing on town culs-de sac; and concrete-post-and-wire-railings around unnecessary front gardens—front gardens which don't generally exist in the rest of the village. We get trivial and vulgar planting of shrubberies and small blossoming trees. We get all these things and more—things that are completely out of character with the English village as it has existed for hundreds of years and which quite destroy its essential simplicity. Most of what has been done in most of our villages for a couple of generations has been vulgar and false—the work of suburbanized minds which have never taken the trouble, or are incapable, of thinking squarely about what they are doing.

Who is to blame? We are all to blame—the people who want their detached or semi-detached ideal-homey houses near the village but not, if they can possibly help it, actually in it—the builders who build them—the rural council which builds its suburban blobs, and employs its local surveyor to design them—the architects (when they manage to get a commission), because even when they put up reasonable houses they have no idea of how to relate them together, since for the most part they seem to be quite ignorant of the principles of site planning—the planning officer who approves plans when he should know better—the County Surveyor who insists on concrete kerbs—the agriculturalists who refuse to see that the public interest is not always best served by shoving houses on to the

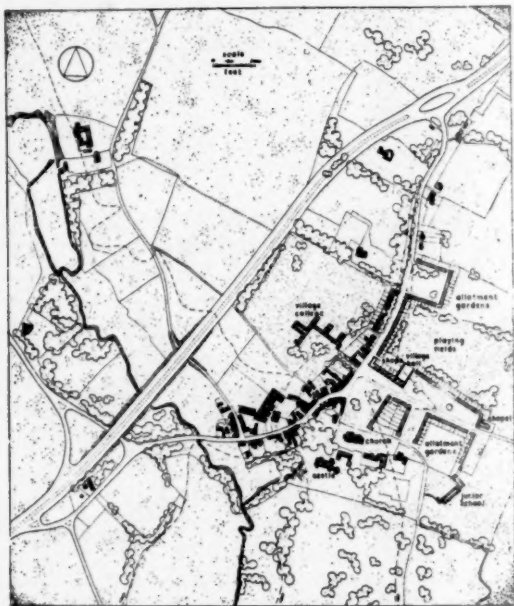


FIGURE 8. (cf. Fig. 7) *How it might have been planned*

worst bit of land that can be found regardless of where it is. Everybody seems to conspire to-day to make the worst possible—the most *unskilful*—job of village enlargement.

What does skilful enlargement consist of? Well, first of all, the scale of the enlargement has to be right. And here I see a very real danger in a thoughtless application of Lionel Brett's interesting thesis of spreading people about the country. There is a limit to the amount of enlargement a village can take without endangering and actually destroying its character *as a village*. I haven't sufficient time to go into this—or indeed any part of the subject—in detail. But there's a very real difference between a true village and the little half-towns we're likely

to get if we start decanting disproportionate numbers of townspeople into old villages. That may not matter very much in villages of no marked character—and there are, of course, numbers of those about. But we've got to be extremely careful what we do in the others. If we start thoughtlessly extending them so that too many more people can live in them (if indeed they want to), we shall end by destroying the very thing, their village character, which is their main attraction. Of course one can't draw up a formula relating size to character. Villages, fortunately, differ too much for that. But I think you're likely to be getting somewhere near disrupting a well-established village if you suddenly start doubling its size—and the disruption will almost certainly be social as well as architectural. Rather than do that degree of enlargement on an existing village it would almost certainly be better to establish a new one—providing it were far enough away from an old one not to become a kind of suburb to it (and that ought to be a mile or a mile and a half at least).

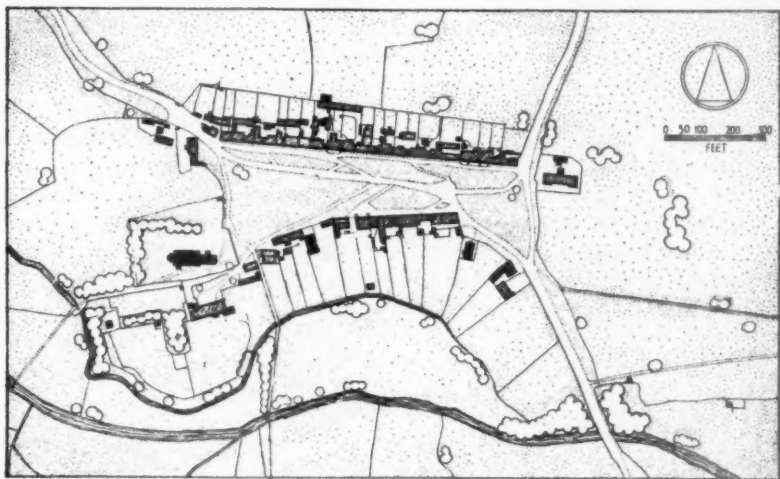


FIGURE 9. *A village in Northumberland*

And if we can keep the scale right, what else does skilful enlargement entail? One thing it certainly does mean. That is that the enlargement must be fully and properly integrated with the existing village and not merely dumped alongside it. It will be best, indeed, if it is not readily recognized as an enlargement at all—not a single-piece enlargement, but rather a series of infillings and completions, half-a-dozen houses filling in this gap, eight or nine completing that other, and so on. And if opportunities for that do not occur, and it is necessary to add a bigish group, at least let it be truly added to the village, so that it coalesces with it and is properly articulated to it and doesn't stand detached two or three fields away, looking from the beginning what it will be to the end, not part of the village at all but merely an adjacent housing scheme. I wish one could



hope that there'll be no more housing 'schemes', only groups of decently designed houses decently sited in proper places and not *schemed* as if they were mere public utilities. A change of attitude of that kind would make a wonderful difference to our village additions.

And then if the siting is right, there's the form—the site planning in detail. Here, I believe, we should have absolute simplicity and a kind of free order. Let a row of houses be just a row of houses without knobs or nibs on. Let them splay away from the parallel: let them form an occasional open uneven quadrangle. Let the plan be free but ordered. And let us have enclosure and continuity. But above all let the forms be simple and uncomplicated. Culs-de-sac, deep and regular quadrangles and other set architectural forms, and any rigid compositions involving axes and that kind of paraphernalia, are far too complicated for the simple free form which characterizes the majority of our villages, and which gives them so much of their attraction.

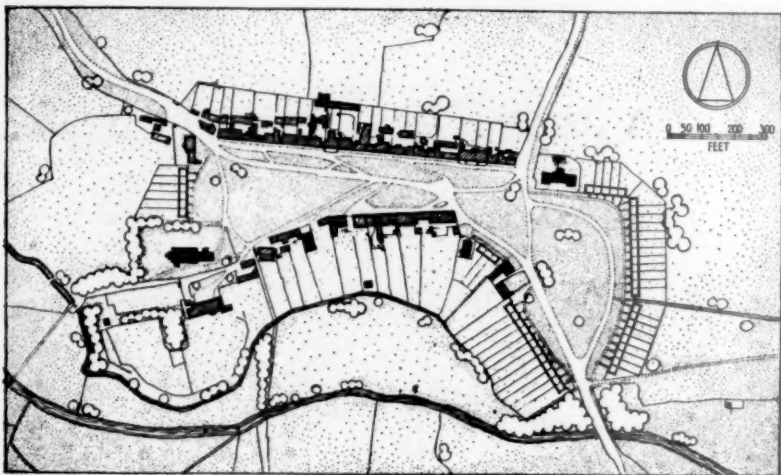


FIGURE 10 (cf. Fig. 9). *How it might be extended, still 'in character'*

As to village architecture, I won't attempt to say anything except that I don't think there is any in a special sense. But on planting I feel I must say a strong word or two. I think that in nothing else is the spread and the corruption of suburban taste and suburban attitudes to-day shown more lamentably than in dealing with growing things. It is manifested everywhere. In town parks, in street rose gardens, in rustic traffic islands, and, coming from Oxford, I must add in college quads. It is displayed universally in a kind of ideal-homey pretty-pretty. And if it is more offensive in any one place than any other, that place is the village. If we are to have natural elements in the public parts of our villages (and surely we must have) let them be simple village greens and the simple noble trees of the countryside, and let us keep the flower-beds, the rockeries, the

finicking growths, the prunus, the pink-icing cherry, the shrubberies, the roses-round-the-door, in the place where they belong, in the private gardens behind the houses.

Why cannot these things be done simply and well? Why cannot our villages be skilfully enlarged in this way? Mainly, of course, it is because of the suburban corruption of taste, and sheer bad planning and bad design. But there are other reasons too. The rigid administrative mind is one of them. It is that which partly accounts for the outlying suburban single housing scheme, instead of the here-and-there infilling which is so much better. It is, of course, easier to let and supervise a single bigger housing contract than to have to deal with several smaller ones (and it is so much easier, too, for the local councillor and the local surveyor to be able to stick out their chests and say 'Look what we have done'). And another reason of the same kind, sometimes, is the rigidity of agricultural interests, their unwillingness to free the obvious place for building because a slightly inferior piece of land exists in a far less suitable place elsewhere. I have already touched on this but I haven't time to develop it further now.

Nor, indeed, to develop any other points. But in conclusion I should like to say this. Providing we keep the enlargement of a village in reasonable scale with what is there now, there are no technical reasons whatever why the enlargement shouldn't be an authentic addition, a local extension, a true complement. Often enough we could not merely maintain but actually increase a village's character, increase its pleasantness, add to its beauty. If we don't do these things now there is no other reason than our own inadequacy. The rules seem to me to be perfectly simple. And perhaps the main rule of all is to avoid fussiness and complication and elaboration everywhere, and everywhere to maintain simplicity; and always to integrate the new with the old. If we hold on to that precept, village enlargement, even if it were not specially skilful, would be at least a great deal better (and it could hardly be worse) than it has been during the last four or five decades.

## DISCUSSION

THE CHAIRMAN: We now pass on to general discussion. I have several speakers down who have mentioned their willingness to speak and others whom it has been suggested I might call upon. Mr. Robinson of the Ministry of Transport and Civil Aviation.

MR. P. A. ROBINSON (Ministry of Transport and Civil Aviation): One of the main points which interests me and my Department is, of course, the highway problems of villages as they are and as they may be when enlarged. It has already been suggested that the spread of suburbia is due to people's desire to live in the country, but suburbia is also due to people wanting the best of both worlds. They want some of the amenities of the town and some of the amenities of the country but, in trying to get them, probably lose both.

Most of us concerned with roads would agree, however, that one of the reasons for the sprawl of ribbon development is something more prosaic. Quite bluntly we know that the desire to escape road charges is an important contributory factor to ribbon development. Ribbon development has not been checked completely yet but local authorities and my Department have achieved a good deal. Our aims may not always be properly recognized; it is not just a question of amenity or of traffic flow

and speeds; people's safety and convenience are involved—not only of road users generally but the safety of the very people who live in 'ribbon' houses. Their children face perils going to school, and we have seen an example, on one of the slides, of a school on one side of a by-pass with half the village on the other.

We all know many villages which were never expected to lie alongside main traffic routes although, unfortunately, they now do so. Apart from noise and loss of amenity, there is always some danger and frustration, not only to those travelling through such villages but more particularly to the villagers themselves. Dr. Sharp has suggested a 'free order' in village expansion, and the village which is not on a main traffic route nor likely to be can probably be left to develop in a form of 'free order' so long as it is kept reasonably compact.

Ideally one should not enlarge villages lying on main traffic routes as so many of the 10,000 mentioned do now, or will, owing to the continuing growth in vehicle ownership and traffic. One should choose a village not on a main road, or else by-pass it so that it can be free to develop without traffic hazards.

It is not so easy in practice, however; people living in villages do not always want by-passes; they sometimes get trade from traffic through the village, or benefit from express 'bus and freight services which go through now but would not do so with a by-pass. A by-pass usually entails buying agricultural land on which other development already makes heavy demands.

There is no easy answer and I do not suggest that it is possible now, or will be in the near future, to by-pass every village on a main road; nor will it be possible to avoid any village, whether an expanding or a static one, having a major traffic problem. What we must all do—the planners, the Parish Council, the County Council, the residents and the highway engineer—is to agree right from the start what we intend to achieve. Planning in my view is as much a question of anticipating the future as of dealing with the present, and the skilful enlargement of a village demands a clear picture of what is going to happen in the future and, in particular, what is going to happen—or be allowed to happen—trafficwise. In speaking of enlarging a village of 400 people to hold 800, one must expect in these days that there will then be 200 or more vehicles in that village. Thus, quite apart from visitors and through traffic, the village will have its own traffic problem in the movement of cars, vans and 'buses round its streets and *in finding somewhere to put them*.

A village, if by-passed, will be left, in the main, with purely local problems of traffic circulation, safety, parking and garaging. But a by-pass will not always be possible, since the main road through a village will often be an integral part of a county or area network linking up a series of villages with the towns, all of which are interdependent. Mr. Brett has suggested that it would be no hardship for some village people to travel up to twenty miles to work, but they would need both vehicles and good roads to do so, and one will continue to get relatively busy roads through many a village. The planner, the highway authority and everyone else must therefore work together to ensure that any enlargement is in fact skilful and caters adequately for traffic. For one thing there must be no ribbon development along main roads. I hesitate to speak of development in depth on estate roads because that sounds like the rigid layout which has been criticized by previous speakers, but it need not be. Access to main roads must be restricted and a village should expand to one side of the main road, not along it or on both sides. Do not let us have the school, village hall or church on one side with all or most of the houses on the other, to create a problem not only of danger to all road users but to the villagers themselves, plus the loss of amenity, noise and confusion which we are only too conscious of in town and country to-day.

I hope I have said enough to emphasize the importance of keeping traffic and highway problems well to the fore in considering the enlargement of villages.

MR. W. H. GIFFARD (Hon. Secretary, Gloucestershire Branch of the Council for the Preservation of Rural England): The general planning of housing estates, enlargement of villages and planning of new towns has progressed at great speed during the last few years and the control by Planning Authorities has been most effective. We can all call to mind certain enlargements of towns which present fine examples of simple unified modern architecture, well planned roads, etc.

But in most cases that is the end of the admiration.

During the last two years especially, I have had the opportunity, through judging gardens on rural council estates, to visit many sites, and I have always been struck by the lack of shade and absence of group tree-planting.

Sometimes there are some roadside trees such as pink cherries or scarlet thorns, and very occasionally there may be a fine specimen oak as a sole survivor from the original site, but all the others disappeared because they were obstacles to good development. This reminds me of the story of two surveyors contemplating a projected housing estate. One remarked to the other, 'We don't know where the roads are coming, but we had better start felling the trees'. Surely the proper remark should be 'We know where the trees are, so we can start planning the roads'.

Trees show the character of the landscape. In flat country, trees form screens, provide shelter and create the primary interest. In hilly country they emphasize the contours and make the pattern. Without them, in town, village or country, the landscape without shade or shelter is dead.

The neglect of tree planning must be halted and must now become the primary concern of planners.

We cannot do better than follow the example of the Dutch. When the winning of the Zuider Zee was first planned, one of the first points to be considered was the planting of trees; trees for shelter belts, trees for roads, trees in landscape groups. This has been consistently adhered to. In the replanning of Walcheren Islands (flooded in 1953) even the hedges were planned as well.

In order that such planning should be consistent, the Dutch Ministry corresponding to our Housing and Local Government has a Forestry Department, and before any plan is passed the Director of Forestry puts on the plan the sites for the groups, shelter belts, avenues and hedges, and states the area necessary to be reserved, together with his recommendations for the varieties of trees to be planted.

One word about hedges. In this country, on most housing estates, the tenants are given hedge plants, but these are frequently the quick growing *lonicera*, and occasionally privet. Surely it would be better to have quick, beech, holly, or mirabel plum than the foreign *lonicera*.

Planning of trees may cost more, through the necessary sacrifice of building land, but the creation of a lasting amenity is something which can never be regretted. I therefore make a plea that the Minister of Housing and Local Government should consider the Dutch example and possibly appoint a Director of Forestry with wide powers for tree planning.

MR. A. R. N. ROBERTS (A member of Council of the Society): I am ill-equipped to speak on any of the technical problems raised by this Conference, but may I emphasize one social problem: I think it is a pity that in these days we insist upon classifying ourselves in these horrible things called 'age groups' and 'age brackets'. We are always talking about Youth Clubs and Darby and Joan Clubs; I feel on the other hand that it is important that we do *not* isolate ourselves into these age groups. It so happens that I am due to retire in five years' time and my wife and I have been looking for our ultimate home. The very last place we thought of looking for it is in one of these districts to which people do retire. After all, we hope not to be quite dead at 60, and therefore I do very much support what Mr. Brett and Dr. Sharp have said, that you want to find yourself in your later days taking part

in the life of a lively community. We have been lucky enough to find, Mr. Giffard will be pleased to hear, a perfectly modern cottage in a Gloucestershire village, between a seventeenth-century manor house and a pair of medieval cottages. There we hope to play some part in a community and not to be labelled as elderly people, or move into a bungalow that is specially designed for people who cannot walk upstairs!

MR. F. H. POTTER: I am a schoolmaster who has for two years been a member of a local council (feeling extremely isolated in that capacity), and I have since then attended a number of conferences on the method of town planning and the spread of subtopia. Reigate, where I live, lies more or less on the edge of this growth now, and the thing that has struck me in my life (I have been rather fortunate, I have lived in rather nice places for most of my life—in Burford, in the Cotswolds and in York) is how to educate the local councillor and the local official. Having spent my career in schools it strikes me that nowhere in the life of the school or in the university is any attention paid to, shall I say, the grounding of the person in some sort of elements of taste and design. If you take the ordinary boy destined for a university: he goes to a prep. school, he is allowed to paint and draw up to the age of eight; after the age of eight he is removed from any influences like that, and then he goes to a public school or to a state school and drops the subject that should influence his taste as soon as he comes to the age of 13 or 14. He goes up to the university and perhaps at some thrilling stage he buys a postcard of Van Gogh's *Sunflowers*, and that is about the limit of his æsthetic experiences. He then migrates, and eventually may become a civil servant or else a local government official or somebody on a council, and you will find that such a person lays down the law on standards of taste, or else he will perhaps reason that there are no standards of taste, and so then, of course, he moves in, little is done to maintain standards, and then the speculator moves in. That is a problem which I feel should be broadcast and should be spread far more seriously, because it is this kind of cultivation of taste in these local officials, particularly, which I regard as being valuable. I mean they are dangerous where they are in opposition or indifferent to your views. Some of you may know that on the top of Burford, where I lived in the 'thirties, there were a group of council houses put up in this lovely limestone country. They were a hideous line of shacks and they were built without any opposition. If you go into Coney Street, York—I was there a little time ago—you will see what is going on: the hideous development without any apparent fight at all. Now I am quite sure that fight can be shown. I do not suppose we are very successful in Reigate, but we have even constrained Woolworths, and made them have a yellow fascia or a white fascia instead of the ordinary red one. I think that things like that can be done if people are willing to try and learn what is a good colour and what is a bad colour, and what is bold design. There should be some way in which people should be trained. There is a great opportunity for Societies like this and the new Civic Trust to try and permeate the universities and those whom they educate and foster in them some elements of taste.

SIR HUGH CASSON, F.R.I.B.A., R.D.I.: Taking the last speaker first, and this question of taste. It seems to me that so many of these questions are not questions of taste, they are questions of common sense, and that is what—taking up what Dr. Sharp said—seems to me so baffling. It is baffling that a village is not, and cannot be, enlarged on these systems that Mr. Brett and Dr. Sharp explained. I begin to think that the people who really are at the bottom of the trouble are not the public in their lack of taste, but we, the architects and the planners. We have all made attempts to show how these things could be better done, and I know that we meet opposition, but I cannot believe the opposition is so strong that it could not be argued over with common sense.



I should like to ask Mr. Brett this particular question, as it is a thing which has always puzzled me. Why is that back land, which he has described and shown in pictures, never used? Is it a matter of finance, or of complicated ownerships? Is it not a fact that each of those yards which we want to use for back-filling, so to speak, belongs to so many people that it is much easier to go out and buy a couple of acres from one of the farmers, and this is, in fact, the reason why those lands are never used?

One other point, this question of the life and death, as it were, of a village. Mr. Roberts said that he was going to Gloucestershire. Well now, Bourton-on-the-Water, I read only the other day, was being invaded by a great assembly of slot machines. I do not suppose there is anybody in this room who does not know Bourton-on-the-Water, and shudder at the news. And yet one reads that the villagers do not seem to mind.

Then there is also the example of Markyate. Do you remember Markyate? Do you remember where the lorries used to thunder through within inches of people's windows? Well, now the lorries have gone, and there are large numbers of 'To Let' and 'For Sale' boards put up in the Markyate High Street. Is this because the housewives, now that the noise of the traffic has gone, feel that they are out in a backwater? There is a possibility, it seems to me, of creating little dead places, unless we follow up Mr. Brett's solution, which I am sure is right, for bringing more life into the village, even at the risk of—I will not say destroying its character, it may not need destroying—making it different. It may be a good thing, it may be a bad thing.

Now for tree planting. A great deal of tree planting is destroyed by children. I always remember Dr. Bradbury, Architect to the City of Liverpool, saying that unless he could find somebody who could breed trees made out of concrete he would continue to have a pretty hopeless time in Liverpool. He would replant them time and time again, surround them with fencing, and still the children had them all down within a few weeks. Well, that is something which I think everybody has to face, and the only hope here is through the schools. I do warmly support the gentleman suggesting that what we lack—not only in the Ministry; it might be better, perhaps, to say in the Planning Offices—are good technical landscapists. I am sure there must be scores of people in this country who would be capable of doing this work, although, goodness knows, the training of landscape design is lamentably weak. I think there is only one whole-time school in the whole country where the subject is taught, although there may be a few more. In the knowledge of skilled landscape we once led the world. We are now perilously near the bottom of the list.

There are two other problems, as I see it, which might arise, and in fact do arise, in villages, which no one has touched on. One is disposal, the other is street lighting. I do not know whether you have ever read these fantasies about life and time which show a typical man, and by his side what he has done or used during his life. You see this tiny creature with this great heap of junk which he is going to get through during his life. Those of you who have been lucky enough to go to America and drive or ride across the Middle West have in fact passed a little shack in the middle of nowhere and by the side of the shack is a heap of what he has used: all the old motor-car chassis, the mountain of cans, a couple of rusty agricultural implements, old tyres, all the stuff which it does not seem to be anybody's job in any country in the world to get rid of. Take this problem of the disposal of large-scale rubbish. What are you going to do with it all? If you go into any little village you will see it all in the back yards: you will find all those things, heaps of metal or heaps of rubbish which nobody has the time or the money to get rid of. We must see to it that those heaps of rubble or garbage do not become a major feature any longer in towns within the countryside. Rural District Councils, as far as I can see, will have to take some really quite serious steps to deal with this matter. Disposal, as far as I can see, is shortly going to be a major problem in our villages.

The last point I wanted to raise was this question of street lighting. If you are

going to get all these people in these villages, and have the villages that much larger, sooner or later you are going to get demands for street lighting; and I hope very much that our friends in the Ministry of Transport will do their best to ensure that we are not floodlit like greyhound tracks just because we have got so many more hundred people living in a particular village. It can be very difficult to do gracefully, but we must learn before we do irretrievable harm.

I think really the problem must, as always, come back to the architects and the planners. Do we do too often what we are told? Are we given the wrong sites and do we not make enough fuss about it? Ought we perhaps to serve more often on these councils where the mistakes could have been stopped right in the initial stages? It is rare to meet an architect or a planner on any of these committees. We just do not put ourselves up for election or exert ourselves, as we ought, to help laymen to train their taste so that they may take a proper part in the discussions affecting those decisions which eventually make the mess by which we are surrounded.

MR. R. M. STUTTARD (Youth Hostels Association): We must all have felt that when Sir Hugh Casson was speaking a few moments ago we lived through a very solemn moment. He stood before us in something of a winding sheet, certainly a white sheet, and we had the spectacle, too, of a choir behind him, in similar white sheets, his professional associates and, I think, most members of the planning profession. I am speaking for a quite non-professional body of amateurs who would like to try to draw away something of that burden of guilt which seems to have borne so heavily upon him, and I merely want to put a question on a specific point of fact. I understand that under the 1947 Planning Act there are powers in one of the Schedules for Advisory Committees to be established, Advisory Committees to the Planning Authority of an area, and I understand also that little, or possibly no, use is made of such powers. Sir Hugh said—if I understood him aright—that he rather regretted that people did not come forward more, people of taste who have an interest in these matters, to serve on the councils and advise. Would not the use of these Advisory Committee powers in the First Schedule of the Act be a solution to this problem? There must be many people who do not wish to put themselves up for the ordinary council elections but who would be willing to give some time to serve on such a committee. I personally would welcome the views of people here, either Planning Officers or members of Planning Committees, as to whether that would be an acceptable solution.

MR. R. H. WHITEHORN (Council for the Preservation of Rural England): Will some practising planner or member of the Ministry of Town and Country Planning say what are the practical administrative difficulties in carrying out the comprehensive development of a village such as is contemplated by Mr. Brett and Dr. Sharp, having in view the Ministry's powers on appeal?

MR. L. N. FRASER: Half an hour ago I was anxious to get up and say something about the owner of all this land in the village. I am a planning officer and the question that has just been asked is one I should like to answer. We really must mention the owner in this room this afternoon, the owner of all the land in the village; it may be one owner—rarely in these days with the selling off of the large estates—more generally it is a multitude of owners. Now how, in fact, do the villages grow? From a planning officer's point of view this is what he sees happen: it is a fairly simple job, and as we are all agreed in this room, a most necessary one, to design a village on the drawing board, to make a model of it, to talk about the 'skilful enlargement'. It is quite another matter to carry it out, for these reasons: first of all, in the present atmosphere in the country to-day arising out of the policy of the Government, compulsory acquisition of land is not a good thing. Secondly, I thought the agricultural interests had been rather brushed aside: it is well known that in many

rural villages the home farm is right on the village doorstep, the home paddock and the home pasture go right into the village, and it really is not very illuminating to study a village from the air, you really *must* know the farm boundaries. You *must* know what the farmer or the farmers round the village *do* with their land.

Now the way a village has grown since the war could be divided into two aspects: first, the council housing, and second, the private development. The council housing goes something like this: in my experience it has often been the practice for the county planning officer's representative, generally the area planning officer or the divisional planning officer, to go round the rural area with the rural council housing committee and the local surveyor looking for sites for council houses. I am not saying this always happens, but it happens quite often and it is the best way. Various sites are considered and maps prepared, and all the investigations are made into them, including whether they can be drained, who owns them, what farm do they belong to, and so on. And that is where the battle begins. You have then the tug-of-war between, say, the planning officer's view of the best place for building houses in the village, which are generally in line with what the speakers to-day have said. Then you have the local council's point of view, who wish to get one piece of land, on which they can build twenty houses cheaper than, say, on four pieces of land. Then you get the local parish representative's view, who thinks the housing should be at one end of the village, or at the other end, or on one side or the other, and all these tugs-of-war are taking place, and this goes on for a year or more. Eventually a planning application is submitted to the Planning Authority for one or perhaps two of the sites and the Planning Authority has to take a decision, which it takes, knowing all the factors that have been investigated. And I am afraid that the end result is not always the result that we all in this room desire. If, in fact, everyone does agree that one piece of land is a good site to build council houses on and the owner refuses to sell then you are back where you were; although many compulsory acquisitions were made for village housing sites immediately after the war I do not think many are being made to-day. So the district council then have to go for a piece of land that they know they can buy. Now I want to mention one aspect of this: the purchase value for compulsory acquisition is very much lower than the price that an ordinary owner or farmer can get if he sells the land to a builder for private development. You know that gap is widening every day between the 1948 value and the 1957 market value.

Now as to skilful enlargement, therefore, on the council housing side it is very difficult: sometimes sites have been chosen and developed and the owner has been willing to sell—he may have been a public-spirited man and decided that it would not ruin his farm, and it has happened that the site is well placed. In many cases it is not as well placed as some we have seen in pictures this afternoon.

Now, secondly, by private development: what happens in this case is, taking the ordinary small village away from the building pressures, from concentrations of population, you get applications to build one or two houses, and they always come in, of course, where there is a road frontage. If one man wants to build one house in a village he cannot build a road into the land just for his one house, he must try and find a site on a country lane leading out of the village, or somewhere where there is a made-up road, an access. Even if he was willing to build in one of these back areas of the village he would probably not be able to buy the land. Again, if you study the villages on the ground and not from the air you will find, perhaps, very long back gardens and paddocks and all sorts of village uses at the back of the village front as you see it from the village street which are really part of village life, and I am not so sure that we really ought to fill all those spaces up with houses.

Then another application comes in, and so you get a gradual increase of the number of private houses round the village. It is not always difficult to find an occasional site for which planning permission can be given and which the owner can buy, because

he can pay the price he can afford, he is not tied down to the compulsory acquisition price.

A different kind of village, which is a much more difficult case, of course, and the dangerous one, is that within twenty or thirty miles of the big centres of population, or shall we say within daily travel, for instance, for the commuter. There are plenty of examples within thirty miles of London. And here is the real danger to-day: much is said now about preparing village plans, and on the face of it that sounds an awfully good idea. As you know, village plans are not something that planning authorities have to prepare as part of a county development plan, but, of course, they can prepare them and get some sort of approval from the Planning Authority and get them publicized and agreed by all concerned. But the real danger is this: if you prepare a village plan which shows, say, ten acres of land allocated for building development, the day that becomes known anywhere in this part of the world it is bought by a speculative builder almost overnight, and you finish up with the problem of trying to stop, say, an urban estate of semi-bungalows or bungalows of an urban density with a concrete road on that piece of land, when your real intention was, of course, to get that piece of land developed gradually over five or ten years as part of the slow growth of the village. So you there come up against a difficulty: if you do prepare these village plans and they become public—as, of course, they must—then builders who are looking for land (and it is becoming more and more of a difficult problem round the big centres where the land is getting exhausted, this search for land in the villages within ten or twenty miles of London or Birmingham or Manchester) snap it up. Now this is a difficulty to which I do not yet know the solution. One possible approach, of course, is to not zone biggish pieces, but to try and allocate, say, the odd acre, half an acre, in which the big speculative builder would not be interested because it is not the sort of land on which he wants to deploy his building labour. That is one possibility. The other way is to try and programme the rate of release of the land, but that is not too easy, it gets tied up with the legality of planning conditions and so on.

Those are some of the harsh facts of life in trying to secure what we all feel ought to be done to villages.

In conclusion, I just want to mention two aspects of village life which I think would be interesting this afternoon, and they are 'Best-Kept Village Competitions' and 'Private Housing Awards'. Having skilfully enlarged your village it is a very good idea to keep it in a nice state, and some councils—I know of many in East Anglia and there are probably some in other parts of the country—do run each summer a 'Best-Kept Village Competition'. This is on a voluntary basis, and there are certain volunteers who judge the various villages and points are given for cleanliness, particularly absence of litter, tidiness of gardens, and so on. In Essex this year the Council held a 'Best-Kept Village Competition'—they are not the pioneers, it had been done many times before—and they are presenting three trees to the area finalists, that is five villages, and another two trees to the final winner, and they will be planted somewhere in the village after discussion with the parish council.

The next thing is the 'Private Housing Award'. The Ministry of Housing and Local Government have run a Council House Award Scheme for some years now, as you probably all know, and recently they have extended it to private houses. Recently the C.P.R.E.'s publication, *Your House on View*, did refer to such a scheme that was run by East Suffolk County Council, where they give an award to the best built private house, and the Essex County Council recently adopted it also. The intention there again is to judge which is the best privately built house and to present one tree to that particular house. It does not sound very much, but if it is done, say, for ten years, the presentation of one tree and a certificate and that sort of thing, with some publicity—and this is something I think the Civic Trust might find interesting to follow up—

it is all helping to bring about the results we want to see in these villages, and it is from the small beginnings that you can achieve a long-term target.

MR. J. T. WARD (Department of Agricultural Economics, Wye College): I should like to deal briefly with some of the agricultural aspects of this case. One or two people have mentioned agriculture and I would like to stress this aspect of the problem. As most people here will realize we are losing something like 30,000 acres of agricultural land a year for urban development, and the majority of this is good quality land, well above the average.

I should like to mention specifically one point that Dr. Sharp raised, and that is the question that arises when he wishes to site his houses on a particularly good site which he selects on planning grounds but to which objection may be raised on agricultural grounds. I think the decision, which is usually left to the local planning authority, is an extremely difficult one, because we are dealing with two entirely different qualities: one is the abstract planning aspect of the case, the other is generally couched in terms of the actual food output from the land. It is impossible to compare 'this is a good site' on the one hand with so many gallons of milk, tons of potatoes and hundredweights of wheat on the other. I should like to suggest that if we could resolve one or both of these into economic terms then some valid comparison could be made. I suggest, therefore, that instead of the agricultural case being put in physical terms, relating to output or simply to the quality of the land, an estimate should be made of the value of output. This could be done fairly easily by the budgeting techniques that we are using in the Departments of Agricultural Economics, and could be done even more simply in average terms, if necessary, by the use of the figures that the Ministry of Agriculture has published in its booklet *The Farm as a Business*.

Now it is essential to realize that output from farmland involves costs in the form of feedingstuffs, fertilizers, and so on. The next step in the calculation, therefore, is to deduct these costs from the value of output, and we arrive at a net output, the annual value to the community of that land in agricultural use. This can be left as an annual figure, or we can go a stage further and capitalize it, and so obtain a capital figure.

In assessing the relative agricultural merits of two sites we should compare them on this basis. We should then be able to say to the people of that area, or to the nation as a whole, 'You may choose between these sites on planning grounds, but if you do you should realize that the cost involved in using the better site instead of the poorer one is so many hundred pounds or whatever this figure may be'.

On this basis we have some sort of an estimate, we can actually show people what costs they are incurring. At the moment this is not generally done and people are left with a very vague comparison in mind. Most of them would prefer good planning, and planning will be better and more rational if people know more precisely the costs that are involved in land-use decisions. These costs can only be considered on a comparable basis, not on a purely physical one.

MR. BRETT: I should like to avoid our going away with the feeling one so often has at the end of this sort of day, that on one side are the idealists and on the other side are the practical men and never the two shall meet—and even the idealists do not agree. Taking this last point first, I should like to clear up what may have sounded a minor disagreement between myself and Thomas Sharp. He said he thought that doubling villages was a mistake: I did not actually mean to say that we *should* double the size of villages, simply that we *could*, and that if we added a hundred people to each we should be housing a million. But a hundred people, of course, is not very many; it is only twenty houses, generally much less than half. So I think that as far as we two are concerned it is possible to say that we agree.



DR. SHARP: Yes, indeed; and may I add this: that the word 'doubling' was in my paper before I heard you speaking, so it cannot be felt to be a criticism!

MR. BRETT: Thank you very much. Now I was extremely grateful for what Mr. Fraser said about acquisition of land. I should like to comment very briefly because I feel that we did there get down to the rock bottom of this business, and if anything that Dr. Sharp and I have said is to have any practical value we must face up to the points that he raised. This question of the multiplicity of ownerships in a village is perfectly true and I think everybody knows that it is more complicated to get land inside an urban area than it is on the perimeter. Yet we must face it.

On compulsory purchase, my own view is that there is a case for it here. I have never been able to see how we can do things right without it, and to my mind the main objection to compulsory purchase is not that it is compulsory but that the money is not adequate. I have never been able to see, although I am no expert in these matters, why if a local authority acquires a piece of land it should not pay the same as other people do. If it did, and if it could be shown that what it did with that land was in the general interest, I cannot see why we should object on principle to compulsory purchase, and indeed I am quite certain that unless we accept it we shall never be able to do any of the things that need to be done in this field.

Mr. Fraser mentioned the various kinds of people who are going to build in these villages. There are broadly three kinds, and we want them all. To my mind the least important is the council with its housing scheme, because we have got that already; the agricultural population has been re-housed to a great extent. The people I want to see—and they are people whom I think Dr. Sharp's pictures did not really illustrate—are the small individual developer and the speculator. Now if one uses the word 'speculator' some people are inclined to hold up their hands in horror, because of what we have seen in the last fifty years, but we must realize that speculation is not in itself bad: speculation is, I suppose, morally neutral, it is just a question of how you do it. What we have now to do is, of course, to educate our speculators. There are one or two people in this country who speculate intelligently and indeed extremely attractively and who have shown it to pay. There is no doubt that intelligent and sensitive people using the right architects could exploit village character and village atmosphere by means of speculative housing and make a job of it without spoiling the villages. It may sound starry-eyed to talk of it at the moment, but it must be the aim.

Lastly, the individual fellow to my mind is the most important of all, because villages have never grown by the kind of organized development that we saw on the slides, they have always grown by the accretion of individual units. We should encourage the individual developer to come into the village, but—and this is a 'but' which brings me back to all those 'ifs' that I had in my paper—there has to be a planning authority of sufficient authority, sensibility and tact, to get the right result out of those people. I know it can be done; I have done it in one or two minor cases myself. All these things can be done, and I do not think we should go away from here in any mood of defeatism.

THE CHAIRMAN: I am charged with summing up and concluding the Conference. First of all, I think you would wish me to suggest a vote of thanks to our speakers, Mr. Brett and Dr. Sharp, who each gave us an excellent talk, and I should also like to include those who contributed from our audience. Will you show that you agree with me in the usual way?

*The vote of thanks to the principal speakers was carried with acclamation.*

As to summing up, you know, it is probably profitless. I have a 'rigid administrative mind'—to quote one of our speakers—gained in about twelve government

departments. I emerged from the University, just as Mr. Potter described, without æsthetic instruction of any kind, but luckily fell where apparently Sir Hugh has suggested one should not fall, among the architects, of an older generation than him at that stage, and became interested in these matters. I am left with the general impression—and I have had it for some time, perhaps because I live in a village, and partly because I saw the problem for a few years through the eyes of the Ministry of Town and Country Planning—that this question of village planning is both a delicate and a neglected subject.

Mr. Brett said we must not be too discouraged, but I come from a village which has had considerable additions made to it. There is one point which was mentioned by somebody in passing, namely, the social aspect. We have undoubtedly gained, I think, in my village, by getting a greater variety of experience into it, mostly from young people. They have joined keenly in local societies, and that is a very important element.

A Conference of this kind was held last year as an experiment. Our Council considered the result, and we felt that it had been too dispersed, that we had allowed too little time for people to speak from the floor. This second Conference is again an experiment. I am not going to ask you to express any opinions upon it now; but I am sure the Council of this Society would be glad to have a note from you, whether you represent organized bodies, or whether you are come as individuals, to say whether or not you think the experiment has been worth while, and perhaps to suggest improvements which, if the Council should decide to repeat it another year, they would certainly be anxious to consider.

*The Chairman then thanked the delegates for attending, and declared the Conference at an end.*

[The members of the Organizing Committee of the Conference were: Sir Stephen Tallents (*Chairman*); Lady Brunner; Miss Sylvia Crowe; The Earl of Euston; Mr. Milner Gray; Sir Herbert Griffin; Lord Latham; Mr. Oswald P. Milne; Lord Nathan; Mr. J. M. Richards; and Mr. A. R. N. Roberts.

The following organizations were represented:

Advertising Association; Air Ministry; Automobile Association; Basildon Development Corporation; Berkshire County Planning Department; British Road Federation Ltd.; British Travel and Holidays Association; Buckinghamshire County Planning Department; Building Societies Association; Cambridge County Planning Department; Cambridge Design Society; Cambridge Preservation Society; Caravan Club of Great Britain and Ireland; Central Office of Information; Civic Trust; Corby Development Corporation; Council for the Preservation of Rural England; Council for Visual Education; Department of Scientific and Industrial Research (Building Research Station); Design and Industries Association; Durham County Planning Department; Eldorado Ice Cream Co. Ltd.; Essex County Planning Department; Esso Petroleum Co. Ltd.; Gas Council; Hampstead Heath and Old Hampstead Protection Society; Harlow Development Corporation; Hemel Hempstead Development Corporation; Hertfordshire County Planning Department; Housing Centre Trust; Imperial Chemical Industries Ltd.; Incorporated Society of British Advertisers Ltd.; Inland Waterways Association; Institute of Builders; Institute of Landscape Architects; Institute of Park Administration; Kent County Planning Department; London County Council; London Group of the Holiday Fellowship; London Society; J. Lyons & Co. Ltd.; Metropolitan Public Gardens Association; Ministry of Agriculture, Fisheries and Food; Ministry of Education; Ministry of Housing and Local Government; Ministry of Transport and Civil

Aviation; National Association of Probation Officers; National Coal Board; National Farmers' Union; National Federation of Women's Institutes; National Parks Commission; National Union of Townswomen's Guilds; National Union of Teachers; Nature Conservancy; North Riding of Yorkshire Planning Department; Northumberland County Planning Department; Outdoor Advertising Industry Advisory Committee; Ramblers' Association; Reigate Society; Roads Beautifying Association; Royal Automobile Club; Royal Institute of British Architects; Rural Districts Councils Association; Society for the Protection of Ancient Buildings; Society of Industrial Artists; Staffordshire County Planning Department; Standing Conference for Local History; Stevenage Development Corporation; Surrey Amenity Council; Town and Country Planning Association; Town Planning Institute; Unilever Ltd.; War Office; West Riding of Yorkshire Planning Department; Wye College (Department of Agricultural Economics); Youth Hostels Association.

The following also accepted invitations to take part in the Conference:

Mr. Oliver Batten; Mr. Clive Bossom; Mr. Frank W. Clark; Mrs. Clark; Mr. W. J. Clark; Miss Elizabeth Denby; Mr. W. H. Giffard; Sir Walter Gurner; Mr. C. Hamilton Ellis; Mrs. O. Howison; Mr. Davis Hutchings; Sir Geoffrey Hutchinson; Brigadier J. L. P. Macnair; Mrs. M. Mathieson; Mr. Ian Nairn; Lieut.-Colonel J. R. Oxenham; Mr. R. O. Porter; Sir Allan Quatermaine; Hon. Godfrey Samuel; Mr. L. Trier; Mr. W. M. Whiteman; Sir Hugh Casson.]

# SIR GEORGE CAYLEY (1773-1857): A PIONEER OF SCIENCE AND ENGINEERING

*A paper by*

*CAPTAIN J. LAURENCE PRITCHARD, C.B.E., Hon.F.R.Ae.S.,*

*formerly Secretary of the Royal Aeronautical*

*Society, read to the Society on Wednesday,*

*18th December, 1957, with C. H. Gibbs-Smith,*

*M.A., Keeper of Extension Services, Victoria*

*and Albert Museum, in the Chair*

THE CHAIRMAN: The reason I am here to-day is because I am the self-appointed press agent or publicity officer of Sir George Cayley. It is rather fun being the publicity officer of someone who has been dead 100 years; you have great scope. The second reason I am here is because I am one of Captain Pritchard's greatest admirers. I have been learning things from him all the time I have known him, and will go on learning for the rest of my life.

One thing in particular I hope will get abroad, as it were, both through the lecture and through the audience: that is, that Cayley was not an amateur. Unfortunately there are too many people who think that George Cayley was a kind of brilliant eccentric who happened on various discoveries and made a matchbox aeroplane in the basement. We are trying hard to combat that idea. Cayley was the highest grade of professional, and to have shown that is one of Captain Pritchard's great achievements.

One thing more before I ask him to start. I thought you would be amused at a sentence which I found quite by accident in a novel I was reading last night, which refers perhaps, to a slightly later period than Cayley's; but the same thing was happening. It says, 'Physics held no terrors then, and the laws of the universe were something a man might deal with pleasantly in a workshop set up behind the stables'. I think that rather beautifully describes Cayley.

*The following paper, which was illustrated by lantern slides, was then read.*

## THE PAPER

One hundred years ago, to this very day, there appeared in *The Times* for 18th December, 1857, the following Obituary Notice:

Cayley, Sir George; Sixth baronet (only son of Sir Thomas Cayley, Fifth baronet, 1732-92) b. 27 December 1773; succeeded 15 March 1792; invented an instrument for testing purity of water by abstraction of light, and another for obtaining and applying electric power for machinery; carried out a system of arterial drainage in Yorkshire on a principle unknown in England. He had previously drained an estate of his in Lincolnshire. Was the first promoter and adopter of the cottage allotment system. Chairman of the Polytechnic Institution, Regent Street, London, 1838. d. Brompton, 15th December 1857.

That was a typical British understatement. It is not surprising that British

encyclopædias and *The Dictionary of National Biography* failed to include his name in their pages. The *American Cyclopædia* included his name as early as 1858. It will surprise many who read this paper to learn that Cayley's name has been a familiar and honoured one in this lecture hall since the first lecture of the Aeronautical Society of Great Britain was delivered in it on 27th June, 1866. The Aeronautical Society has since founded a Cayley Lecture in his memory.

The Cayley family are of Norman origin and received large grants of land in Norfolk shortly after the Conquest. They did not settle in Yorkshire until some five hundred years later.

Sir George was born in the town of Scarborough, to which he gave, and from which he received, much. He was fortunate enough to have as tutors George Walker and George C. Morgan, the former a leading mathematician and the latter a lecturer on science and mechanics. From them he not only received a sound grounding in their own subjects but a knowledge of politics and other interests which was to stand him in very good stead. Walker was a man of outstanding ability not only as a scientist, but as a mechanic and inventor, and imparted much of his skill to Cayley. He was a Fellow of the Royal Society and President of the Literary and Philosophical Society of Manchester.

In the latter part of the eighteenth century and the first half of the nineteenth, local Philosophical societies were formed in many parts of the Country, so that those interested in science could meet and exchange ideas and information. Some day the history of these local Philosophical societies will be written, for their Proceedings show as wide a range and great a depth of scientific curiosity and endeavour as in any period of our island story. Their great number was a clear indication, at the time, of an interest which was not being fully satisfied or led on a national scale.

Cayley grew up in that atmosphere and had many famous friends in science and engineering. His correspondence with them shows him to have had that broad sweep of interest which is the very essence of civilized progress on a wide front, an interest he took every opportunity to foster in others. He was a contemporary of Thomas Young, of optical fame; of Humphry Davy, the great physicist; and of James Watt and George Stevenson.

He helped to found two of these local societies: one, in 1821, the Yorkshire Philosophical Society, founded 'to promote science in the district by establishing a scientific library, scientific lectures, and by providing a scientific apparatus for original research'; and the other, in 1831, the Scarborough Philosophical Society, for similar purposes.

Cayley became a Vice-President of the Yorkshire Philosophical Society, and his friend, Viscount Milton, its President, with John Phillips as its Secretary. Phillips was a famous geologist who in later years became President of the Geological Society, and President of the British Association at its Birmingham Meeting of 1865.

All three men were to play their pioneering parts in the spread of scientific and engineering knowledge and ideas by helping to found the British Association.



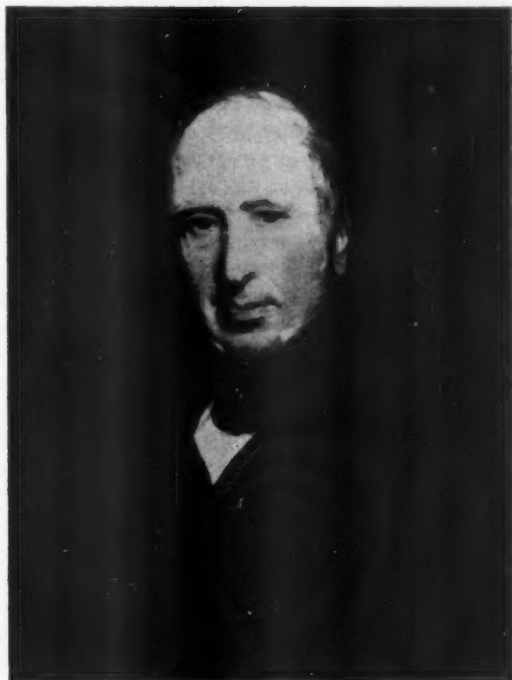


FIGURE 1. *Sir George Cayley, Bt.*  
(From a painting by H. P. Briggs)

For it was to John Phillips, as Secretary of the Yorkshire Philosophical Society, that Sir David Brewster, the well-known physicist and discoverer of the polarization of light, wrote on 23rd February, 1831:

I have taken the liberty of writing you on a subject of considerable importance. It is proposed to establish a British Association of Men of Science. . . . The arrangements for the first meeting are now in progress, and it is contemplated that it should be held in York as the most central city in the three kingdoms. My object in writing to you at the present is to beg that you would ascertain if York will furnish the accommodations necessary for so large a meeting . . . if the Philosophical Society would enter zealously into the plan. . . . The principal objects of the Society would be to make the cultivators of science acquainted with each other, to stimulate one another to new exertions—to bring the objects of science more before the public eye and to take measures for advancing its interests and accelerating its progress.

Cayley, as a Vice-President of the Society, and a leading public figure in York—he was Chairman of the powerful Whig Club—wielded great influence in that city. He responded zealously as requested, setting an example followed by the

City Councillors and the members of the Philosophical Society. In a brief history of the British Association, published in 1922, it is recorded that 'The mother Society of the British Association is the Yorkshire Philosophical Society, for it was in the name of the Council of that body that the first public circular calling attention to the proposed meeting "of the friends of science" was issued to other societies and to individual "cultivators and promoters of science."

Since that day the names of nearly every great figure in Science and Engineering have appeared in the annual reports of the Association. It was not, however, without a considerable amount of jeering on the part of *The Times* and other papers, the critical magazines, and more critical individuals, that the Association held its annual meetings. The Mudfog Papers appeared in *Bentley's Miscellany*, and lovers of Dickens will recall two of the papers on 'The Mudfog Association for the Advancement of Everything', with the sayings of Professors Snore, Doze and Wheezy, and the section on Umbugology.

It was in this atmosphere that Cayley steadfastly remained a 'cultivator and promoter of science'. I have said that among his friends were Lord Milton and John Phillips. It was Lord Milton who became the first President of the British Association and John Phillips its first Secretary. Cayley remained a member all his life, as he did of the two Societies he had founded in York and Scarborough. He lost few opportunities to spread the scientific and engineering gospel. He had friends on the Continent as he had in Britain, and, as an example of his efforts, he helped Baron de Ferussac to begin the publication of that Continental encyclopædia, the *Bulletin Universelle*.

Before he had reached his twenty-fifth birthday, Cayley had begun to take a lively interest in the possibility of flight. But he had early learnt the lesson that, to encourage interest in any branch of science, one of the better ways was to form a society, where one could talk and publish papers.

Three times he tried to form an aeronautical society. The first attempt was in the year 1816, when he wrote in *Tilloch's Philosophical Magazine*, 'I wish to bring all those who interest themselves in this invention to act in concert towards its completion, rather than be jealous of each other respecting their own share of credit as inventors'. In January, 1837, he tried again. At the end of a paper on Aerial Navigation which he had written for the *Mechanics Magazine* he used the words: 'Let the friends of aerial navigation be called together by advertisement in your pages, at the instigation of a few favourable to the project; let a place—say the Adelaide Gallery—and some convenient day next month be named, and from this meeting let such resolutions emanate as may best ensure the progress of the Society for Promoting Aerial Navigation.'

But again the suggestion did not reach fruition. In 1840 he appealed for the formation of a Royal Aerostatic Institution, the principal object of which was

to extend the application of the balloon to all purposes to which it may be beneficially converted, and to endeavour to improve the practice of the art of Aerial Navigation, by the adoption of such expedients as may be considered most likely to conduce to the establishment of a definite course.

The former of these includes the institution of experiments in the different branches of Meteorology, Electricity, Galvanism and Magnetism . . .

Atmospheric Refraction, the Theory of Aerial Currents and such other subjects as may be deemed susceptible of advantage from investigations conducted under the peculiar circumstances of the case . . . .

The appeal succeeded no better than the previous ones, despite a certain amount of support by some of Cayley's friends. One of them, the Duke of Argyll, wrote to him on 6th June, 1840, 'I am as anxious as ever for the furtherance of the project, or rather call it the *Science of Aerial Navigation*', and asked Cayley to make a point of seeing him when the tenth meeting of the British Association was held in Glasgow that year. Although nothing came of the proposal then, it was the Duke who, some years later, helped to found the Aeronautical Society of Great Britain, and became its first President.

But the closing of one avenue for the spread of interest in science and engineering only inspired Cayley to try to open another. He was constantly writing to the *Mechanics Magazine*, suggesting new ideas and offering examples of what he thought should be done to develop them. But this was not enough to satisfy him. He was one of the early promoters and patrons of the Adelaide Gallery, where, in 1843, W. S. Henson made model power-driven aeroplane experiments.

In 1832 Cayley was elected a Member of Parliament for Scarborough. His new duties brought him more frequently to London, and there he got the idea of forming the Polytechnic Institution in Regent Street, for research work in, and the teaching of, engineering and science, and for drawing the attention of the public to new discoveries in both subjects. The Institution was granted a Royal Charter in 1839, but Cayley, who remained its Chairman during his lifetime, soon found himself facing the difficulties, common to all such bodies, when money is wanted which will not need to show an immediate return. He appealed for help to industry, and some light is thrown on the response in a letter Cayley wrote shortly before one of the meetings of the directors of the Institution.

Mr. Nurse, the great builder, furnished the largest half of the capital and he and his friends (all for *money*, with science as the means) will have the main say at such a meeting. . . . However, we wanted more *science* and we wanted a sub-committee to carry on matter between the meetings of directors . . . We have laid out a good round sum of money, and the place, by its laboratory, its theatre and splendid gallery, is well adapted for the display of scientific discoveries, and were it truly in scientific hands, so that scientific discoveries were thrown off here hot from the brain and before they had become public property by publication, sufficient novelty would be produced to excite public attention and to make it pay. We much want a good scientific board confined by no aristocracy of orthodox men who sit like an incubus on all rising talent *that is not of their own shop*.

Cayley finished his letter with words which apply more than ever in these days: 'Freedom is the essence of improvement in science.' I firmly add that control or secrecy is its death knell.

When Cayley died the directors of the Polytechnic Institution passed a resolution that they had not only lost

one to whom this establishment is deeply indebted for the advice and support afforded to it for many years, but they also lose the prestige of his name as Chairman; and they desire to record their conviction that, from his position in

society, his attainments as a scientific man, and his high character as a gentleman, it has been highly valuable to this Institution. They believe also that his earnest desire to diffuse and render popular a knowledge of science has been a great public good.

Cayley was only in his twentieth year when in 1792 he succeeded his father and found himself head of estates which had been considerably lessened in value and size due, in part, to the hospitality of his ancestors. It was a heavy responsibility at his age, but one which he quickly and easily shouldered. Only three years after his father's death he married the daughter of his tutor George Walker and began the necessary work of recovery of the land.

He had succeeded to the estates just at that time when France was facing the rising tide of Revolution followed by the Napoleonic wars, which caused considerable distress throughout Great Britain. In the first decade of the nineteenth century there was much unemployment, especially in Yorkshire and Lancashire. Cayley was, to quote G. M. Trevelyan, one of those 'English rural landlords who did much for the countryside and its inhabitants'. He showed much concern for all who worked on his estates. He was the first man to bring into being the allotment system, in the year 1805. He did so on a generous scale, allowing every labourer who was willing and capable of doing so, an acre of land to cultivate. The example he set was followed on a lesser scale for more than half a century. His consideration for his tenants and those who found conditions difficult went far beyond lip service. In Yorkshire he headed an appeal for a relief fund for the unemployed with a sum greater than that contributed by many men richer than he. He never failed to help those in distress, and died a comparatively poor man.

From George Walker Cayley had acquired a mechanical skill above the average. At Brompton he had his own workshop, and when one of his tenants lost a hand, 'I proposed to make him an artificial one', he wrote, 'in the hope of rendering his loss less severe.' The hand that he made attracted great attention, and his unfortunate tenant was called to London in 1845 to be presented to the Prince Consort at the Royal Society's *soirée* and to be congratulated on it. In later years Cayley published details of various improvements enabling the wearer to use a knife and spoon and even to pick up such small objects as needles.

The Cayley estates were in poor shape when he succeeded to them. Much land was under water, but he began a drainage system which proved so successful that he was twenty-five years ahead of his neighbours in the growing of crops on land which was once covered with coarse grass and rushes. Many thousands of acres around his own land were frequently flooded, and when the *Muston Drainage Act* was passed to control the floods, he was chosen as Chairman of the body responsible for carrying out the extensive work necessary. It was a post he held for thirty years. In the *Mechanics Magazine* for 28th June, 1856, a time when there were destructive floods in France, he gave an account of the methods used.

The work on his own flooded areas brought him to design and patent the conception now known as the caterpillar tractor. The illustration shows a

FEBRUARY 1958

SIR GEORGE CAYLEY (1773-1857)

reproduction, from the patent drawing, which appeared in the *Mechanics' Magazine* of 28th January, 1826.

Cayley's own original notes and detailed sketches of this most astonishing forecast of things to come, have survived, and are now in the care of the Royal Aeronautical Society. The following quotation is taken directly from these notes:

This invention, which may be called The Universal Railway, is for the purpose of forming locomotive vehicles by which the impediments and resistances of every sort of road, land, morass or water will be obviated or overcome with a great saving of power. This is effected by placing under the wheels of the vehicles such sort of supporting structures as may suit the species of way the vehicle is calculated to pass over. These supports admit of a variety of forms. . . . Upon these supports rests the part joint of a railway which in

## ***Mechanics' Magazine,***

MUSEUM, REGISTER, JOURNAL, AND GAZETTE.

No. 127.]

SATURDAY, JANUARY 28, 1826.

[Price 3d.]

"That pain we take in books or arts which treat of things remote from the use of life, is but a busy idleness."—Fulder.

### SIR GEORGE CAYLEY'S PATENT UNIVERSAL RAILWAY.

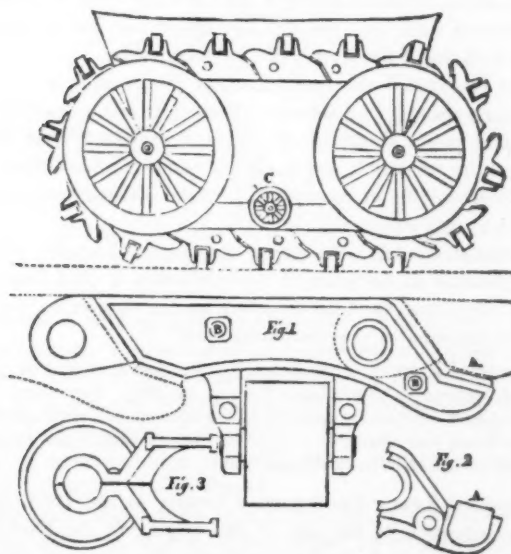


FIGURE 2. Facsimile of the first page of the *Mechanics' Magazine* for 28th January, 1826, showing the forerunner of the caterpillar tractor, Patent No. 5260 of 1825



connection with other similar joints form an endless chain capable of freely coiling round the fore and hind wheels of the vehicle, these wheels being deeply grooved to embrace and retain the endless railway thus formed . . . these joints of the railway are so hinged as to form one firm right line incapable of bending when pressed down by the wheels.

In the case of a rail chain being applied to the water a much greater magnitude of parts will be necessary—each link may then consist of external frame work with diagonal braces though applied in the same manner as to its mechanical operation, and a boat or other shaped watertight float will form the supports under each link.

Here was the genesis of the modern tracked vehicles capable of crossing land or water.

At this point one may call attention to another wheel which Cayley designed for a very different purpose. In his notebook he wrote:

In thinking how to construct the lightest possible wheel for aerial navigation cars, an entirely new mode of manufacturing . . . occurred to me, *vide* to do away with wooden spokes altogether, and refer the whole firmness of the wheel to the strength of the rim only, by the intervention of tight strong cording.

This was the basis of the best known wheel in the world, the bicycle wheel, but Cayley did not publish his description, which he had written and illustrated in his notebook under the date 19th March, 1808. 'Such a wheel', he wrote, 'would I am confident be almost everlasting for light travelling vehicles.' In his note he gives full details for its construction. In 1827 T. Jones, a carman in a large way of business, obtained a patent for the same type of construction and Cayley believed for a while that his idea had leaked out, but it was soon shown that Jones had thought of the idea quite independently.

Cayley always recognized the importance of power, and in 1807, when his first printed paper appeared in *Nicholson's Journal*, it was a description of a hot-air engine. 'I send you a sketch of an engine I projected upon this principle several years ago', he wrote. 'It was made on a considerable scale at Newcastle, though I must confess without success . . . which I attributed to the imperfect manner in which it was executed.'

The hot-air engine, though not a new idea, was a hobby of Cayley's for over forty years. He became an Associate of the Institution of Civil Engineers, where the subject was often discussed. In a lecture on the subject on 15th February, 1853, one of the speakers in the discussion said:

the first approach to a practical caloric engine was that invented by Sir George Cayley and described in *Nicholson's Journal* in 1807. For many years his attention was almost exclusively devoted to the subject and eventually, in 1837, one of the machines was reported . . . to be doing a duty equal to 5 h.p. with an expenditure of 20/22 lb. of coke per hour.

Eight years before, James Stirling, in a lecture at the Institution of Civil Engineers, drew attention to the use of this engine in the Dundee Foundry works for nearly a year to drive the machinery. He reported that the engine had been raising 700,000 ft. lbs. per minute, and had been considered so successful that one of more than double the power was then under consideration.

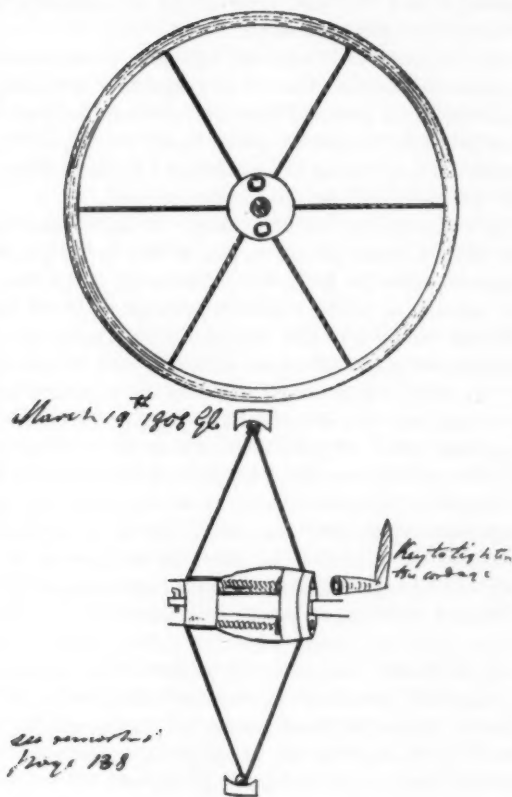


FIGURE 3. Cayley's light wheel for aeroplane undercarriages, the forerunner of the bicycle wheel

The engine was a promising one in comparatively small sizes, and indeed Sir Goldsworthy Gurney, a firm friend and associate of Cayley, and himself a famous engineer, declared that its principle of using the fuel directly to give the power made it superior to other engines then being developed. Ericsson, the Swedish engineer who designed the ironclad *Monitor* during the American Civil War, and many other warships, thought enough of the principle to fit a ship, called the *Caloric*, with a hot-air engine.

In the same year during which he had first shown his interest in the hot-air engine, Cayley, under the date 22nd November, 1807, gave a description in his Notebook of a gunpowder explosion engine. It began with the words, 'Being in want of a simple and light first mover on a small scale for the purposes of some preparatory experiments on aerial navigation, I constructed one in which the

force of gunpowder and the heat involved by its explosion, acting upon a quantity of common air, was employed'.

This little experimental model was very ingenious. It was in effect an internal combustion engine, a measured amount of gunpowder providing the explosive to move the piston, and a powerful bow spring returning it ready for the next explosion. Two connected stopcocks corresponded to a modern inlet and outlet valve. The outlet cock, to release the compressed air, shut automatically as the inlet cock, for the delivery of the gunpowder, opened.

Later Cayley suggested the use of hydrogen or carburetted hydrogen gas as a fuel, 'for' he said, 'a much cheaper engine of this sort might be produced by a gas light apparatus and by firing the inflammable air generated with a due proportion of common air under a piston'. He also suggested the use of oil of tar as fuel. He was the first, in fact, to consider an internal combustion engine for aerial purposes, and might have gone some way with developing it in practice if he had not, like many others, concentrated on the expansive power of hot air.

Cayley was a man who was always looking towards the future, eager to seize on an idea or project which offered a better life for all or vistas of new horizons. The coming of the railways was like a breath of fresh air to him, for he foresaw a tremendous increase in travelling and communication. But as each stretch of new line opened, Cayley grew more disturbed at the increasing number of accidents. As one of the V.I.P.s of the North he was present at the opening of the Manchester and Liverpool Railway on 15th September, 1830, when William Huskisson, a leading politician of his day, was killed.

From that year until 1845 many papers on railway improvements by Cayley appeared in the *Mechanics' Magazine*. He suggested the use of compressed air to lessen the potentially disastrous effect of a collision. First-class carriages were fitted with padded cushions to absorb shock, and Cayley sharply wrote that they should be fitted to all coaches, for, he declared, 'Each man's life is equally valuable to himself, and should be equally protected'. He put forward the idea that all passengers should wear broad belts to hold them in their seats, a precaution accepted by the air-minded passengers of a later date and now being widely adopted by American motorists.

In a paper of this length I have space only for another instance of his suggestions for railway safety. This was an automatic block system of control.

Suppose that signal posts be placed at a mile distance from each other on each side of the railroad. . . . By a contrivance detailed, every train that comes up to one of these post causes its red signal to be hoisted, which continues up till the train proceeds a mile further, and arrives at the next post, in passing which the signal on the first posts is withdrawn. . . . In the case of fog a bell should likewise be so arranged to ring on the train passing any post showing a red signal.

This paper is not just a suggestion. In it he gives illustrations of the necessary constructional details, making allowance for temperature effects on the wiring controlling the system, and so on. He even suggested that there should be automatic signals in the driver's cabin to indicate the way the points were set before the train actually reached the points.

I should not fail to quote a plea for safety which Cayley made in one of his railway papers. 'It is necessary', he wrote, 'to make a positive law that the up trains shall always keep to one set of rails, and the down trains to the other.'

Cayley's knowledge of scientific and engineering progress was extensive, for he read more widely than most men in his day and was constantly in touch with leading engineers and scientists. His comments or reasoned notes were numerous and cover a wide range of subjects. For example, he wrote a note to the *Philosophical Magazine* on the absolute zero in the Fahrenheit Scale, and gave a more accurate figure than that of most of his contemporaries; he made an instrument for testing the purity of water by optical methods; outlined the construction of theatres so as to give the best acoustical results to audiences; and made suggestions for the streamlining of shells.

The references at the end of this paper will enable those who wish to do so to read more fully of the life and work of this remarkable man in fields I have not the space here to cover: political, military, social and family.

The name of George Cayley is very well known in aviation, though until the discovery of his Aeronautical and Miscellaneous Notebook by J. E. Hodgson about thirty years ago, the full significance of his work was not fully appreciated. On the inner cover of the Notebook appear the words 'You, to whom it may concern when I have gone, may find the seeds of thought in these scrawls, G. C.' And indeed one does. The notes cover a wide range of subjects and activities, farming agriculture, mechanics, astronomy, bird and mechanical flight, aerodynamic research, ballistics, electricity and magnetism, strength of materials, and so on.

Cayley's great reputation, and proud title 'The Father of British Aeronautics', rest on secure foundations which have been described in some detail by J. E. Hodgson, W. Lockwood Marsh, and the present writer in the *Journal of the Royal Aeronautical Society*. This is not the place to consider technical details at length, but an outline of what Cayley contributed towards solving the problem of flight should be given.

In his famous paper on Aerial Navigation, published in *Nicholson's Journal of Natural Philosophy* in 1809-10, Cayley laid down the basis of heavier-than-air flight for the first time. It is an astonishing paper, for it began a new way of thought. That great authority Theodore von Karman wrote, in 1954:

The idea that sustentation can be accomplished by moving inclined surfaces in the flight direction, provided we have mechanical power to compensate for the air resistance, was probably clearly defined for the first time by an Englishman. Sir George Cayley, in his paper published in 1809-10 on aerial navigation . . . clearly defined and separated the problem of sustentation, or in modern scientific language the problem of lift from the problem of drag.

The paper has three times been reprinted by the Royal Aeronautical Society, and by various papers throughout the world, and quoted by aeronautical enthusiasts year after year since it first appeared.

I will only quote one more opinion here of the many which have been given. It is by Orville Wright, in a letter he wrote on 9th December, 1912, to Henry

Woodhouse: 'Sir George Cayley was a remarkable man. He knew more of the principles of aeronautics than any of his predecessors, and as much as any that followed him up to the end of the nineteenth century. His published work is remarkably free from error and was a most important contribution to the science.'

In his paper Cayley discussed the fixed wing machine. He drew attention to the importance of lightness, particularly with regard to the engine; he discussed the problem of stability, both lateral and longitudinal and of ways to ensure both. He was well aware of the movement of the centre of pressure of a wing, and its effect at different angles of the wing to the air stream. His Notebook reveals the care he took to obtain the data he quotes in his paper, the model experiments he carried out and his method of research to obtain the best results. Here he has noted the weights of various birds, the areas of their wings, the weights of their pectoral muscles, and their speeds, as a guide for the conclusions he was drawing about fixed wing flight. 'I am apt to think', he wrote, 'that the more concave the wing, to a certain extent, the more it gives support, and that for slow flights a long thin wing is necessary, whereas for short quick flights a short broad wing is better adapted.'

Under the date 1st December, 1804, he describes the experiments he made with a whirling arm apparatus of his own construction to gauge the pressure on a surface moving at an angle through the air at a known speed. 'I made my experiments with great care and often repeated', he wrote, 'with the same results.' He was well aware of some of the errors he might make and tried to allow for them.

He made a model and a full-sized glider to test his results. The model had an adjustable tail plane and a movable centre of gravity. 'It was very pretty to see it set sail down a steep hill, and it gave the idea that a larger instrument would be better and safer down the Alps even than the sure-footed mule, let him meditate his track ever so intensely.'

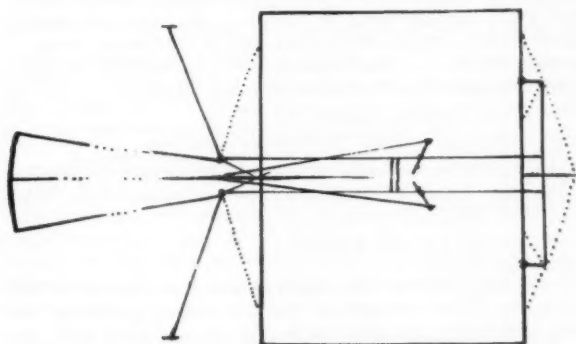
The larger glider was tested years later. 'The coachman went in the machine', related Mrs. Thompson, Cayley's granddaughter, 'and landed on the west side (across the slope at Brompton Hall) at about the same level. The coachman got himself clear, and when the watchers had got across, he shouted "Please, Sir George, I wish to give notice. I was hired to drive, not to fly".'

While the present paper was being prepared it was announced that the first convertiplane had flown—a machine which can rise and land as a helicopter and fly as an aeroplane. Cayley, in an article published in the *Mechanics' Magazine* dated 8th April, 1843, described and illustrated the construction of a machine which it was proposed would do just that—the first convertiplane. He began the description of his machine by observing that

Aerial navigation by mechanical means alone must depend upon surfaces moving with considerable velocity through the air . . . to be of ordinary use, they must be capable of landing at any place where there is space to receive them and of ascending from that point. They should also be capable of remaining stationary, or nearly so, in the air, when required. Very great power, in proportion, to the weight of the engine, is necessary to answer these, or, indeed, any of the purposes of aerial navigation by mechanical means alone.



air at  $17 \frac{\text{miles}}{\text{hr}}$  produces a pound on every foot by one account  
 by a more correct one a velocity of  $12 \frac{\text{miles}}{\text{hr}}$  or  $14 \frac{\text{ft. per sec.}}{\text{hr}}$  is equal to  $17 \frac{\text{ft.}}{\text{hr}}$   
 the length of the car  $10 \frac{\text{ft.}}{\text{in}}$  1.2 from joint to fulcrum



whole weight of Machine 110 lb.  
 my own weight 160  
 Total 270 lb.

whole surface 380 sq. ft.  
 thin given  $1 \frac{1}{2}$  feet

FIGURE 4. Cayley's drawing for a glider to carry himself, with notes in his writing of his own weight, weight of glider, and area

Cayley did not neglect the airship, and wrote a number of papers on dirigibles. He believed that the bigger they were, the more efficient they would be, and that they should be streamlined to lessen their resistance. He worked out details of lift and horsepower, structure weight, payload, and stated the importance of guarding against the external pressure on the surface when the airship was flying.

In one of his papers he proposed an airship with a lift of 163,000 lbs. driven by a steam engine, and made the astonishing suggestion that by means of a double skin much of the water converted into steam could be recovered and used again, so avoiding much waste of ballast. 'There will remain rather more than 34 tons or power for any purpose required', he wrote. '... This would convey supplies of fuel or water. The extent of the voyage in calm air would be 960 miles.'

This is but a brief survey and has left out much which should appear in an account of this great aeronautical pioneer, who had science and engineering in his blood.

I should like to finish with an extract from a letter Cayley wrote in December, 1817 to Lord Stanhope, who had been expressing the view, shared by many people, that when the aeroplane came it might bring more evil than good. One hundred and forty years ago this month Cayley wrote:

I should agree with you, my Lord, in thinking that aerial navigation should be well considered in its results to human society before it be introduced. . . . Navigation had its attendant evils which were balanced by a greater good. . . . Navigation certainly produced the invasion of this country by Caesar, by the Saxons, and by the Normans; these events were evils to those who bore them. But to these very things we owe our civilization, our love of liberty, and our urbanity of manners. But for navigation we might have this day been naked savages with painted limbs and dwelling in huts. . . . A new and more extended power commensurate with the still further state of civilization, in my view of the case, presents itself. . . . Our business seems to me to be to put the practicability to the test, and never to hesitate as to the result.

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## DISCUSSION

THE CHAIRMAN: It is very hard to know how much an audience such as we have to-day is interested in Cayley. There are parts of the aeronautical profession who know absolutely nothing about him, and some parts who know a great deal. It is very difficult to know where those patches occur.

There is no question at all but that Cayley was in every modern sense the inventor of the aeroplane; there is no denying that. You have only got to look at the dates and examine what he did. He had defined the basic aerodynamic forces operating on a wing as early as 1799, and the little aeroplane he scratched on the back of the disc which is now in the Science Museum is, in all essentials, the beginning of the modern aeroplane of to-day, complete with fuselage, cambered wings, and combined elevator and rudder unit.

As Captain Pritchard said, Cayley made two full-size gliders; one he flew in ballast, and the other one he flew with his coachman, and by an extraordinarily freak of good fortune I was looking through an old *Encyclopædia Britannica* (which has consistently neglected Cayley ever since, even in the very latest edition), and in the edition of 1855 I found an extraordinary confirmation of that free-flying glider of 1852 (or it may have been 1853). This remark occurs in an obscure article in the *Encyclopædia*: 'The flying apparatus constructed by Sir George Cayley can scarcely be considered as a successful experiment, since the wings of that ingenious mechanism acted rather on the principal of a parachute, merely floating the experimenter, who started from a moderate elevation, by a very gradual descent towards the earth'. That is the finest back-handed compliment I have ever seen to a successful glider.

MR. N. E. ROWE, C.B.E. (Technical Director, Blackburn & General Aircraft Ltd.): I should like to ask the lecturer if there is any evidence that Sir George Cayley thought the propeller could be a means of providing thrust? He obviously saw the need for a light engine and attempted to invent this. I suppose he also thought of how he could get the power from the engine into the air to overcome the drag of his apparatus. I always feel that if Cayley had had a light engine he could have flown. He would have anticipated the Wright Brothers by perhaps fifty years. I should be very glad to have the lecturer's view on that. I quite agree it would depend on whether the Wrights found their flight depended finally on getting the right engine. If my view is right, then I would like to know if Cayley had studied the possibilities of getting the power from the engine transmitted into thrust in a manner which could be accommodated in his aircraft.

THE LECTURER: Cayley used the airscrew for ordinary purposes of propulsion.

I do not remember that he commented on it; it was the accepted thing. He paid a considerable amount of attention to the helicopter using air screws for vertical lift and horizontal thrust. One of his latest papers, written in 1853, four years before his death, to the French Aeronautical Society, particularly describes the use of the airscrew for helicopter purposes.

THE CHAIRMAN: The airscrew was invented as such at the end of the eighteenth century. It was first used on a French river to try and propel a small light craft, the idea coming basically from the windmill; and then fruitlessly used in balloons.

DR. A. E. SLATER, M.A., M.R.C.S., L.R.C.P.: I think the lecturer said Cayley had studied the flight of birds. Did he confine himself to flapping flight or did he study soaring flight? And if so, did he really succeed in finding out how soaring was done, and did he contemplate trying to do it with a glider?

THE LECTURER: Cayley was not interested in flapping flight, but very interested in gliding flight, and he gave examples of the gliding which was carried out, especially by rooks on his own grounds. As he pointed out, the rook has a wing loading of one pound per square foot, and that became almost a standard in model experiments for many years. Experimenters then thought the less the loading the better an aeroplane would be able to fly. Cayley pointed out how one could vary the wing loading to get different speeds.

MR. S. G. BLAXLAND STUBBS, O.B.E.: I am very much a layman in matters of flight, but I should like to express my appreciation of my old friend Captain Pritchard's very arduous research into what was an obscure subject until he and Mr. Hodgson attacked it.

I should like to ask him whether Cayley developed his ideas of the light engine. We saw a rather simple diagram of the explosion engine driving down a piston by exploding gunpowder. Did he anticipate the use of an internal combustion engine depending on the idea that high pressure on a piston in a strong cylinder could be converted into a rotatory motion? Can Captain Pritchard, in fact, indicate any possible development by Cayley of some form of engine suitable for the aeroplane he designed? It could not, of course, compare with the modern petrol engine, with its high efficiency. In those early days surely aviation construction was extremely crude.

THE LECTURER: There was only one engine in existence in the early days of the nineteenth century, and that was the ordinary steam engine. The idea arose of the hot-air engine, which was a very cumbersome thing, and everybody took it up. Experiments continued for over fifty years, and occasionally another type of engine cropped up, but this hot-air engine was actually doing a job of work, though it was frightfully wasteful in power. One or two people did realize what Cayley meant about explosion engines, but that success depended upon materials. They had the idea in Britain for explosive fuels. It is very difficult to realize that the early years of the nineteenth century saw the very beginning of mechanical ideas, and things were very crude. We are only now putting those early crude ideas into efficient practice in some instances.

THE CHAIRMAN: Captain Pritchard has given us a delightful, informative paper, and has opened one more window on to the achievement of this very great man, Sir George Cayley. I do hope that you in your turn will make him known as widely as possible, because I am sorry to say that aeronautics is the only subject in this country of which people do not seem to know (or care about) the history. Most sailors know a good deal about the history of their craft and their art. It is an extraordinary thing that only in the last few years has aeronautical history begun to

permeate the profession of aeronautics, and even now, I am afraid, the industry seems to know much more about it than the fighting services.

We ought to thank Captain Pritchard not only for this delightful lecture, but for the part he himself has taken in disseminating and building up a tradition of honour and glory—in the proper sense of those words—in the history of aeronautics.

*A vote of thanks to the Lecturer was carried with acclamation and, another having been accorded to the Chairman, the meeting then ended.*

## GENERAL NOTES

### THE AGE OF LOUIS XIV

As a rule, visitors to the great exhibitions at the Royal Academy begin very purposefully at Room 1. This year, the majesty of 'The Age of Louis XIV'—as the show is called—will be felt with greater impact by those who go first into the Central Hall. There, the great bust of the long-reigning monarch, by Coysevox, is superbly placed opposite one of the inside archways. The stage is thus instantly set, especially as the monarch is surrounded by tapestries in which every man and, indeed every horse, seems to be the only possible associate of anyone with so much assurance. The tapestries are from Paris. Nearly all the other exhibits are from provincial museums. There are more than a thousand of these museums; so the ignorance of even the best informed visitor to France may be forgiven. Nevertheless, the fact has brought surprises and great rewards to visitors.

Wheeling quickly into Room I we may feel a trifle chilled. The *Grand Siècle*, for considerable periods, loses much of its grandeur; and those who wish to savour the real pleasures of the exhibition must expect patchy areas. Many of the exhibits in the first gallery are certainly constructions of genius, compositions in colour, line and mass that are like human cathedrals in paint; but few of them stir the emotions. Most of the paintings are products of Rome, where their producers learned their jobs. It is not too harsh to say that many of the paintings were produced by fine craftsmen rather than great artists. Of course, there are also some great works. *The Adoration of the Shepherds* by Leclerc has a hint of the decorative loveliness we associate with Tiepolo, and the two paintings of *Christ among the Doctors* make an interesting comparison. The one by 'The Master of the Judgment of Solomon' has the central figure looking like a bright-eyed peasant, and may touch the heart-strings. The painting by Vignon has a fine group of carefully considered figures, that make a good decoration round a charming Boy Jesus; but the painter is a long way from being a Rembrandt.

It is a pity that the second gallery is not the first, for here, indeed, would have been a triumphal entry. Out of the fourteen paintings attributed to the much neglected Georges de la Tour, nine have been brought together, a number never before assembled in one gallery. The effect on press day and at the private view can only be compared with the tremendous interest evoked by *The Birth of Venus* in the great Italian Exhibition of 1930. Humanity, firmly, even geometrically built, lit by the coolest candles, is depicted as a holy institution. It is not surprising that the blind *Hurdy Gurdy Player* was once attributed to Velasquez, who, however, has never portrayed anything with such intense sympathy. *The Ecstasy of St. Francis* is spiritual agony and joy; and *The New Born Child* is the absolute in tenderness. La Tour, well known to scholars, now becomes more widely accepted as one of the rare immortals.

Although there are occasions when sacred scenes look like ballets, there are others created with deep sympathy. Among the latter, *The Entry of Christ into Jerusalem*



*The New Born Child.* By Georges de La Tour

must be numbered; but then Nicolas Poussin is a master. His flying angels in the sky are frankly enjoying the procession. The same artist's *Landscape with Figures* is magnificent, his raising of the lake high up on the picture being most effective.

In landscapes, of course, Claude Lorraine produces real majesty, and in portraits Philippe de Champaigne, Antoine Rivalz, Mignard and Coypel are representatives of a wide group of fine portrait painters or figure painters of both men and women. We must turn into the byways to catch further expression of the real spirit of the age. Two paintings are outstanding. One of these is by Claude Deruet, *Air, or The Duchess of Lorraine at the Hunt*, which contains at least sixty fine portraits of equestriennes, women and horses in their fine trappings, with one woman awkwardly unseated; the other painting is a page in a book. This is *Le Grand Carrousel*, in gouache by the miniaturist Jacques Bailley, showing a tournament on the same lines as Deruet's; but with at least a thousand figures, many of them near-portraits, and some indicated very brilliantly with a few strokes. An anonymous *Dead Christ*, stark and desolating, and a group of *Hands* by Largillière seem, in a way, to sum up the show. Except La Tour, two or three busts, and the tapestries mentioned, which are works of great genius, this is a superb exhibition for the student with a passion for design, or the artist who believes that craftsmanship is the be-all and the end-all of painting. The swagger is certainly very entertaining, but life has other emotions.

G. S. SANDILANDS



## HOTELS: A SPECIAL ISSUE OF 'DESIGN' MAGAZINE

In view of the increasingly important part played by the hotel industry in the national economy, and for less weighty reasons, a special welcome may be given to the January issue of *Design*, for it is wholly concerned with hotels, takes a very close look at their present condition and forecasts their future.

The editor, Mr. John Blake, does not find the outlook very promising. It is estimated that by 1963 there will be a 400 per cent increase in trans-Atlantic air travel, and that by 1967 road traffic will have doubled. Yet in spite of the growing demand for rooms, 'new hotels built in this country since the war can virtually be counted on the fingers of one hand'. Rising prices, seasonal fluctuation, taxation of profits and labour problems are the chief reasons for this lack of development, and it seems that many hotel owners find it more economical to buy and remodel existing property than to build anew. The need to make the best use of existing accommodation is universally recognized, and in this respect *Design* shows many examples of adaptation and modernization which deserve to be widely considered.

In its search for working definitions, this issue also discusses and illustrates the particular characteristics that go to make the inn, the 'medium' and the luxury hotel—and the motel, which has as yet made little impression in Britain, though one was built at Boroughbridge as long ago as 1934.

As one would expect, this survey lays great emphasis on standards of design. One section is devoted to the imaginary interiors which Mr. Robert Wetmore has devised for the Berkeley Arms at Berkeley in Gloucestershire. Mr. Wetmore's designs suggest how much might be achieved by sympathetic and imaginative treatment of existing features in an old inn, and may be compared with work that has successfully been carried out by Professor R. D. Russell in re-styling a room at the Lygon Arms, Broadway. Another section of *Design* that will be of particular interest to readers of the *Journal* is that concerned with furnishings and equipment suitable for use in hotels. Most of the items illustrated are taken from *Design Review* and reflect that combination of style and practicability which the Council of Industrial Design's publications have made familiar. But perhaps the strongest argument for paying attention to this section is found elsewhere in the magazine: 'hotels providing visual and material satisfaction are not merely the thing that every traveller has the right to expect, they also represent Britain's shop window, from which the visitor may judge the climate of the nation's industry as a whole'.

The January issue of *Design* costs 3s and may be obtained from The Council of Industrial Design, 28 Haymarket, London, W.1, or through any newsagent.

## IDEAL HOME EXHIBITION, 1958

In the spring of 1908 Lord Northcliffe launched at Olympia the Daily Mail Ideal Home Exhibition, which will celebrate its fiftieth anniversary in the same place next March. If that first Exhibition were reconstructed now it would clearly illustrate the extent and variety of improvements that have since come to be accepted as commonplaces of domestic comfort. Two aspects of Edwardian convenience in the home serve to point the contrast with to-day: in 1908 the Exhibition demonstrated the qualities of gas and acetylene fittings as rivals to (the still comparatively recent) electricity for lighting purposes; and the catalogue for that year includes a number of machines for cleaning table knives.

In addition to the customary display of improved and new equipment, an attraction of quite a different kind is promised for the Jubilee Ideal Home Exhibition which is to be held at Olympia from 4th to 29th March. High on either side of the Grand Hall, visitors will see represented the façades of the Palace of Fontainebleau. Special galleries within these mock façades will contain a large selection of pictures and furniture which have been drawn from National Trust properties all over the country.

The prospect of turning from the inspection of a new refrigerator to go in search of Raeburn's *The Paterson Children*, is a pleasant one.

## SCIENCE FOR ALL

The new annotated reading list, *Science for All*, which has just been published for the National Book League at the Cambridge University Press, meets a long felt need by providing a reliable guide for the general reader. The list includes nearly 700 titles of books on the physical and biological sciences, and is divided into sections covering history, physics, chemistry, astronomy, meteorology, geology, oceanography, biology, zoology, botany and technology.

Copies of *Science for All*, which was prepared by the National Book League in consultation with the British Association for the Advancement of Science, may be obtained from any bookseller, price 9s 6d. each.

## LECTURE ON COLONIAL WILLIAMSBURG

Under the auspices of the English-Speaking Union, a lecture on the significance of Williamsburg to America and to the world will be given by Dr. Kenneth Chorley, President of Colonial Williamsburg, at the Royal Institution, Albemarle Street, London, W.1, at 6 p.m. on Thursday, 27th February. Fellows of the Society who would like to attend may obtain tickets of admission, without charge, from Miss M. Leaf, English-Speaking Union, 37 Charles Street, London, W.1. There are a limited number of reserved seats at 5s each.

## OBITUARY

## MR. BARNETT FREEDMAN

Mr. Barnett Freedman, C.B.E., R.D.I., who died on 4th January aged 56, was an artist of great accomplishment who won success by dint of sheer ability and persistence, and in the face of poverty and ill-health.

Born in Stepney in 1901, Freedman's schooling was cut short by a serious illness, confining him to hospital for four years, during which time he taught himself to draw. By the age of 15 he was sufficiently recovered to begin earning his living, and worked for a time as an office boy, and then as junior draughtsman to a monumental mason. But he had determined to make up for his early lack of formal education. Hard work at the St. Martin's School of Art, which he attended in the evenings, won him a scholarship to the Royal College of Art. Here he benefited greatly from the teaching and encouragement of Sir William Rothenstein, then Director. At this time, too, he met Miss Claudia Guercio, the lady who was to become his wife, and to whose devotion to his private and professional interests Freedman owed so much.

A lean period followed his leaving the College in 1925, and for some years he struggled to make a living at all. His first exhibition, at the Literary Bookshop in Bloomsbury, in 1929, aroused interest; and recognition in a more substantial form followed his Zwemmer Gallery exhibition in 1931, which brought out his remarkable talent as a lithographer. (Amongst the exhibits at Zwemmer's were his illustrations for Siegfried Sassoon's *Memoirs of an Infantry Officer*, later to be included in the *British Art in Industry* Exhibition, which was sponsored by the Royal Society of Arts in collaboration with the Royal Academy in 1935.) The commissions which he thereafter began to receive gave unusual scope for his ability. His posters for London Passenger Transport, particularly the series recording the indoor recreations of London, gave a new distinction to mass publicity. He also did important work for the Post Office, the B.B.C. and Shell Mex.

Though it is through such work, and as a most gifted illustrator of books, that Freedman is perhaps best remembered, he achieved a striking success in an entirely different field of design—the King George V Silver Jubilee Stamp of 1935, the first

of its kind to be designed in this country. He also took an active interest in the theatre, and produced several plays by Israel Zangwill.

Freedman's health was often frail, but his personality was pleasingly robust. Trenchant and amusing in speech, yet always sensitive to the feelings of other people, his manner conveyed not only warmth, but an inner grace of spirit and humility all the more impressive in one whose life had been far from easy. His combination of technical skill, dramatic sense and imaginative sympathy gave his art a special and recognizable quality, and he is justly represented in a number of national collections.

During the Second World War Freedman was an official war artist. In recognition of his work in that capacity he was made C.B.E. in 1946. He had maintained his connection with the Royal College of Art since his student days, as an instructor, a Member of the College Council from 1952-55, and latterly as Honorary Fellow of the College; and he was also a visiting master at the Ruskin School, Oxford. Freedman the teacher was the trusted friend of many students, and he was quick to recognize promise in the young.

Barnett Freedman was elected a Fellow of the Society in 1939. In 1947 he was appointed to the distinction of 'Royal Designer for Industry' in recognition of his work for graphic design.

#### DR. ARTHUR EWINS

Arthur James Ewins, D.Sc., F.R.S., who will be remembered particularly for his work in discovering the first effective drug for the cure of pneumonia, died on 24th December, 1957, aged 75.

Ewins was born in 1882 and educated at Alleyn's School, Dulwich, where he was a scholar. In 1899 he entered the Wellcome Laboratories, Herne Hill, where, after graduating B.Sc. at London University, he was given a staff appointment in 1906. He worked first under the late George Barger and then under Mr. (now Sir) Henry Dale. In 1914 he became a member of Dale's staff in the Central Research Institute of the Medical Research Committee (War Council), and when war broke out was at once engaged with his chief in research for the production of German drugs no longer obtainable at their original source. Through this work he came into contact with the Managing Director of May and Baker, and was offered and accepted a research appointment with that firm in 1917, subsequently becoming Head of their Chemical Research Department. In that capacity he was chiefly responsible, between the wars, for the development of a very important chemotherapeutic programme, and the production of pentamidine, a most effective safeguard against African sleeping sickness, may be singled out for mention in this connection.

The great achievement of Ewins' career, however, was his discovery, in collaboration with the late Sir Lionel Whitby (then in charge of the bacteriological laboratory at Middlesex Hospital), of the sulphonamide derivative—sulphapyridine. Under its original laboratory note-book name of 'M. & B. 693' or, more simply, 'M. & B.' (the abbreviation popularly applied to a whole group of sulphonamide derivatives ever since), this drug became world-famous for its value in the treatment particularly of pneumonia and cerebro-spinal fever. Though sulphapyridine is now largely superseded by other sulphonamide derivatives, it was the forerunner which made all later improvements possible, and it has saved many thousands of lives.

Dr. Ewins, who was elected a Fellow of the Royal Society in 1953, became a director of May and Baker, and remained with the firm until near the end of his life. He was elected a Fellow of this Society in 1947.

#### MR. ALEXANDER MURDOCH

Alexander Murdoch, who died recently at Innellan, at the age of 90, had worked for 75 years with the Singer Manufacturing Company, Clydebank, rising from the

position of office boy to become Chairman and Managing Director of the firm. He was a well-known figure in Glasgow, being a burgess and guild brother of that city, and a burgess of the burgh of Clydebank.

Mr. Murdoch was elected a Life Fellow of the Society in 1941.

### NOTES ON BOOKS

THE ENGLISH FACE. By David Piper. London, Thames and Hudson, 1957. 35s net

Those who visited the recent Exhibition of British Portraits at the Royal Academy will remember that the pictures for the peculiarly interesting early section were chosen and the catalogue entries written by Mr. Piper, and they will open his book with considerable confidence in his knowledge and aesthetic judgement.

Mr. Piper's purpose is to show how and to what degree—judging by the records that have come down to us, paintings, drawings, engravings and written descriptions—the apprehension of the English face has been conditioned by the varying conventions of the day. He traces these changes of fashion: in manner of life, in dress in the use of cosmetics, and perhaps above all in the wearing of the hair. In this last respect, he tells us, the changes (and they affected men at least as much as women) were frequently most capricious and of startling rapidity: as, for example, the shrinkage of the immense piled women's head-dresses of the late eighteenth century to the contrived artlessness affected by Lawrence's sitters, which is so reminiscent of our 'urchin' or 'windswept' cut; or, in the case of men, from the cleanshaven face of Wellington at the time of the Peninsular War to the huge hairiness of Napier. Above all, he shows how certain painters of exceptional talent have not merely recorded the current tendency but have moulded it—their sitters endeavouring to look more and more like the image they had been taught to admire. The tangled interaction of painter and sitter has always been fascinating, but hitherto it has seldom been unravelled so skilfully.

It would be an over-simplification to say—even up to the end of the eighteenth century—that each age had its painter, yet it is hard to think of Henry VIII or Sir Thomas More and not see them through the eyes of Holbein; though Mr. Piper points out how variously Holbein's portrait of Henry struck different persons in different ages. To Sir Walter Raleigh, writing about 1614, the picture was terrifying: it appeared the 'very pattern of a merciless prince'; to Thomas Carlyle it was the portrait of 'a much maligned man, when I look into that broad human yeoman face and see those brave blue eyes of his . . . I must conclude that an honest soul resided within his sturdy body'. Equally it is Hans Eworth, Hilliard and Isaac Oliver who have chiefly formed our conception of the romantically fantastic side of the Elizabethan character. That Charles I, the greatest of all art collectors, should have been so wonderfully served by Van Dyck is a fitting memorial, but if Van Dyck also may be said to have crystallized the idea of the grace and elegance of aristocracy, Dobson in the short years of his amazing career shows us the cavaliers as soldiers and, moreover, as in his great portrait of Endymion Porter, is able to suggest to us by his singularly manly style the very essence of the loyal gentleman who has left a simple country life to fight for his King. Of the Parliamentarians—most portrait painters hitherto being 'court painters'—we have a less clear picture. Here Mr. Piper does us a great service by reproducing Samuel Cooper's most remarkable small 'unworked up' drawing of Cromwell—it is 3½ by 2½ inches—for to many it will be unfamiliar, and his enthusiasm is contagious.

Mr. Piper shows by his admirable choice of illustration and quotation the continuous evolution of the painted image of the English face by Lely and Kneller, heirs of Van Dyck, through Hogarth, Hudson (an artist to whom I think, he does a little

less than full justice), Highmore, Reynolds, Gainsborough and Romney, to Lawrence; and from Lawrence he follows the very complicated social and aesthetic developments of the nineteenth century to Sargent at its close.

Mr. Piper does not deal only with the major artists, and one of the great interests of his book is how much he has to say which will come fresh even to those who have some knowledge of painting. This book should appeal to a wide, and not only an English, public. To those unfamiliar with the contents of the London galleries and great collections its value would be greatly enhanced if, in future editions, further examples of pictures, however 'well known', by the more important painters were added. Mr. Piper makes his points quite clear, but his book is so excellent that by the sort of additions suggested it could have an additional value as a kind of index to English portraits.

Mr. Piper writes simply and straightforwardly, without affectation and without 'art jargon'. Frequently he hits on a singularly apt phrase, as for example his description of Van Blijenberch's head and shoulders of Ben Jonson, 'an orthodox composition from which Jonson insists like a momentarily mild bull from too small a cattle-van'. In his last chapter, entitled 'Not Beauty but Character', where he summarizes the intention of his book, his writing seems to me to take on an additional breadth and sweep. I can confidently recommend everyone interested in the English character and those who have recorded it to buy this book.

ALLAN GWYNNE-JONES

A VICTORIAN CANVAS. THE MEMOIRS OF W. P. FRITH, R.A. *Edited by Nevile Wallis.* London, Bles, 1957. 25s net

As the Victorian age recedes its paintings are ceasing to be the target of uncritical condemnation; it can now be seen that much that was painted between 1837 and 1901 was excellent on its own terms, and much was catastrophically dull, while yet more has an acquired interest as a record of the manners and appearance of a vanished age. Frith's paintings of the times he lived in belong to this last category, for he himself knew, with prophetic insight, that any posthumous fame he might enjoy would stem from his portrayal of the contemporary scene. It has turned out just as he foretold; his *Derby Day* and *Paddington Station* are household words, while his *Claude Duval* and *Last Sunday of Charles II* are forgotten because they do not possess sufficient painterly interest to overcome the Wardour Street banality of their conception.

The present re-examination of Victorian painting is beginning to blow the dust from many biographies and autobiographies. In that period the leading artists enjoyed social as well as financial success, and their letters and reminiscences have much to tell of the fringe of good society; for all that, the accounts they give of their lives are often of a sadly pedestrian kind. The reader of Uwins, of Horsley, of T. Sidney Cooper, even of Wilkie Collins' life of his father William Collins, is unlikely to have his pulse dangerously quickened. But there are exceptions to the humdrum uniformity; Haydon's *Autobiography* is a recognized classic, and Leslie's *Life of Constable* is permeated both by Leslie's charm and Constable's caustic wit. It may well be that Frith's *Autobiography* should be added to this list. He is by far the liveliest of the artists writing of the middle of the century, and his prose has the same merit as his painting in revealing a keen eye for detail and graphic descriptive power. Mr. Wallis's initiative in reissuing his book, condensed to a manageable length and illustrated to the purpose, is therefore much to be welcomed. Here is the salt of Frith's wit beside his most charming paintings; and Frith is a racy raconteur, with a keen sense of the humour and the drama which was so conspicuous a feature of private lives in those days.



It would no doubt be unwise to rely on the literal accuracy of all his stories. For instance, he claims to have heard the Duke of Wellington say of Allan's *The Battle of Waterloo*: 'Too much smoke!' The *Athenaeum* for 1850 records that the Duke praised the picture for exactly the opposite reason: 'Good—very good; not too much smoke.' Since he bought the painting the latter is probably the correct version.

On his motives and ideals as a painter Frith is remarkably reticent, indeed almost too self-deprecating, for it is hard to believe that an artist who had such an uncanny gift for organizing large crowds in significant action, and who could render so well the attractiveness of his cunningly chosen female models, could be so entirely indifferent to his own work. Not unnaturally he disliked the long training in drawing then given to all aspiring painters, and his most self-revelatory remark concerns the enthusiasm he felt when he first took a brush in hand and started painting in oils.

No two abridgers would agree entirely on what to omit from a long work. I myself regret the loss in this edition of the passages on the printing of *Ramsgate Sands*, because Frith makes it clear that it was a critical stage in his career when he first came to grips in this picture with the representation of contemporary life. But this is a small cavil about a book which is unreservedly to be recommended for entertainment and as a reflection of the spirit of a lost age.

GRAHAM REYNOLDS

THE DARWIN READER. Edited by Marston Bates and P. S. Humphrey. London, Macmillan, 1957. 30s net

The editors of *The Darwin Reader* have conferred a very real benefit, not only on biologists, but on the enlightened general reader, by selecting and publishing the extracts from Darwin's works which constitute this book. To the majority of readers, it will perhaps come as a surprise to learn how completely Darwin's views have been vindicated by modern research. It is no exaggeration to say that the mechanism provided by Mendelian genes that mutate occasionally and become recombined in different permutations at the fertilization of every egg, without ever contaminating one another, provides exactly what is required by way of supply of heritable variation for natural selection to work on. In other words, the mechanism of evolution has been explained, and it works as Darwin showed.

In the state of knowledge, or rather of ignorance, that prevailed when Darwin worked out his theory, no scientific information whatever was available concerning the facts of inheritance, and it is a matter for marvel that he was able to recognize the fundamental elements of his problem so accurately and solve them so successfully. The only change of substance that modern scientific knowledge has to make in his argument is one that he would gladly have made himself, if Mendel's discovery had only been known to him. He would then have realized that inheritance is particulate and variance is conserved, that 'blending inheritance' does not occur, that new variations are not 'swamped' by crossing, and that therefore there is no need to look for the supply of new variation in the supposed effects of the environment or in the even more supposititious effects of use and disuse. In fact, these effects are nonexistent, and mutation of genes and their recombinations provides the supply of heritable variation without which, as Darwin himself was never tired of pointing out, natural selection could accomplish nothing. It is now known that with this heritable variation it can accomplish practically anything.

While those biologists and laymen who are aware of this great triumph in the progress of science can hardly be unfamiliar with the writings of Darwin, and he wrote a very great deal, it is undeniable that those who have read even the *Origin of Species* right through are not numerous. *A fortiori*, Darwin's readers among

those who have yet to appreciate the value of his contributions to knowledge must be even fewer. It is therefore extremely valuable to have in so attractive and convenient a form as this volume a series of well-selected extracts from the more important of Darwin's own works—real Darwin, not bowdlerized Darwin; and those who are not familiar with his writings cannot fail to be struck by the cogency of his arguments as well as by the style of his language. His remarks on the origin of man's moral sense, on why he blushes, or on the effects of contact between races of men in different stages of evolution, to mention only three topics, will convince any serious reader of Darwin's stature as a thinker as well as a scientist.

The publication of this book on the eve of the centenary of the theory of evolution by natural selection is wholeheartedly to be welcomed.

GAVIN DE BEER

GRAPHIS ANNUAL, 1957-58. Edited by Walter Herdeg and Charles Rosner. London, Sylvan Press. (Zurich, Amstutz & Herdeg, Graphis Press.) 84s net

It is clear that there are two sorts of good advertisement; one is the 'hard-selling' variety that puts up the sales of a product, the other is reproduced in *Graphis Annual*. Both are good, but the criterion is quite different.

This, at least, is the conclusion to be reached by a study of the poster and press-advertisement sections of this sixth annual volume. The contents of these sections are world-wide in origin and abound with ingenuity and artistic merit; they have been well arranged and beautifully printed—as is the whole book—but where are the ads. that really sell the goods? Of the 350 examples chosen as the best of the year's output, very few would stop a housewife out shopping and change her mind on what to buy.

It may be answered justifiably that many are prestige advertisements designed to sell ideas, not things, because the general run of product advertising fails to reach the *Graphis* standard—it just sells the goods. This distinction between successful art work and successful advertising was well illustrated by the small boy who so greatly admired the picture in a recent Guinness poster. 'Of course', he admitted 'I know it's only an advertisement. It's been put there to make people buy crocodiles.'

The question of whether *Graphis Annual* is right to judge solely by artistic considerations, without regard to 'fitness for purpose', remains to be answered. Probably the book is produced mainly for commercial artists, whose interests lie in the direction of art rather than commerce. In his introduction, Mr. Rosner talks seriously about advertising in its business aspects, and comments on the four discussions on advertising broadcast on the B.B.C.'s Third Programme in 1956, but he does not seem to recognize the existence of any conflict between two concepts of 'good advertising'. 'Ideas expressed in art' he says 'can do more and reach more people than any other form of communication'. Art is evidently interpreted here as strictly visual and does not include the art of writing—least of all of copywriting.

This emphasis on visual qualifications excludes not only all entirely type-set advertisements, but also all photography except the very trick and doctored-up variety. Not even in the book-jacket section is pure typography allowed—the one possible entrant in this category being so queer that the title needs to be worked out letter by letter—and, among the Christmas cards, a slick or humorous design is everything. The Christmas message only intrudes on one card.

These criticisms are more than just a difference of opinion on the examples chosen; they are fundamental and concern the criteria used—in fact, the whole purpose of the book. From every other point of view, this volume is, like its predecessors,

a model of book production. It contains 813 illustrations, 85 in colour, divided into six sections for posters; press and magazine advertisements; booklets and printed material; book-jackets and magazine and gramophone-record covers; Christmas cards, calendars and TV and film advertising; and, finally, packaging, trademarks and letterheads. The examples come from 22 countries and the captions, in English, French and German, include advertisers' and designers' names, and, where appropriate, those of the art directors, advertising agents and printers concerned. All are elaborately indexed. Some well-known names do not appear, but this no doubt is the result of their failure to submit material for consideration rather than of any lapse on the editors' part.

The book carries a small amount of advertising at the end, which includes a register of designers arranged by countries alphabetically.

G. P. GRIGGS

## FROM THE JOURNAL OF 1858

VOLUME VI. 12th February, 1858

### THE PRINCE CONSORT'S REPLY TO A CONGRATULATORY ADDRESS

*On 11th February, 1858, a deputation representing the Society and the Institutions in Union went to Buckingham Palace and presented to the Prince Consort, President of the Society, an address of congratulation on the marriage of the Princess Royal to Prince Frederick William of Prussia. The Prince Consort replied as follows:*

I beg you to accept my warmest thanks for your kind congratulations on the marriage of my beloved eldest daughter with Prince Frederick William of Prussia.

This union, which, from the education and personal character of the young Prince, promises to secure the permanent happiness of my dear child, could not but fill the hearts of both the Queen and myself with joy, and with thankfulness to Almighty God; but we have derived additional satisfaction and pleasure from the universally expressed sympathy, and participation in our joy, by the nation at large.

That this sympathy should be re-echoed by your Society, which, during fourteen years has commanded my best wishes, and any feeble assistance which I could render to it, must be most gratifying to me.

Gentlemen, these fourteen years, which have seen my daughter grow up from an infant, to become a married wife, transferred to a high sphere of usefulness in a foreign land, to which our most tender affection must still follow her, have also seen children of yours—I mean the many plans and schemes for the promotion of Art, Science, and Industry which you have originated—develop themselves, and grow up into independent life and power. Some of these have attracted the admiration of the world, whilst you could only follow them from a distance, with the fond eye of a parent who finds his highest gratification in the success of his offspring.

I am glad to find you accompanied on this occasion by the Deputations of the many institutions throughout the country with which you have placed yourselves in union, and to have this opportunity of expressing to them my strong sense of the usefulness of their exertions for the promotion of the Education of the Adult Classes in this country. I trust they will at all times freely bring the result of their varied experience to the knowledge of the Society, to which suggestions coming from them must naturally be most valuable.

## Some Activities of Other Societies and Organizations

## MEETINGS

- SAT. 25 JAN.** Horniman Museum, London Road, Forest Hill, S.E.23. 3.30 p.m. Dr. Joseph Needham: *New light on the early history of clockwork—China, Islam and Europe.*
- MON. 27 JAN.** Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. F. F. Roberts: *An enquiry into the specification of transistors.*  
Modular Society, at Royal Society of Arts, W.C.2. 7.30 p.m. Ernst Skarum: *Modular co-ordination in building and European Free Trade.*
- TUES. 28 JAN.** Carriage and Automobile Manufacturers, Institute of British, at Royal Society of Arts, W.C.2. 7 p.m. J. Ross: *The story of the 'lodekha'.*
- WED. 29 JAN.** Decorators and Interior Designers, Incorporated Institute of British, at 13 Portman Square, W.1. 7 p.m. E. Carr: *The use of copper and its alloys in building.*  
Metals, Institute of, at The Central Library, Manchester. 6.30 p.m. N. P. Allen: *The behaviour of metals at high temperatures.*  
United Service Institution, Royal, Whitehall, S.W.1. 3 p.m. William Courtenay: *Voyage to Virginia* (Film).
- THURS. 30 JAN.** Anthropological Institute, Royal, 21 Bedford Square, W.C.1. 5.30 p.m. Margaret Mead: *The group as the unit of social evolution.*
- FRI. 31 JAN.** Chemical Society, at Birmingham University. 4.30 p.m. Professor R. D. Haworth: *The chemistry of the Tannins.*  
Engineers, Junior Institution of, 14 Rochester Row, S.W.1. 7 p.m. E. C. Rogers: *The clean air act and the engineer.*
- SAT. 1 FEB.** Interplanetary Society, British, at Caxton Hall, S.W.1. 6 p.m. Dr. N. H. Langton: *Meteorite hazards to space flight.*
- MON. 3 FEB.** Geographical Society, Royal, 1 Kensington Gore, S.W.7. 8.30 p.m. John Ward Perkins: *The ancient landscape of Southern Etruria.*  
Road Transport Engineers, Institute of, at Victoria and Station Hotel, Preston. 7.30 p.m. A. R. Henning: *The use of glass fibres with polyester resin in vehicle bodies.*
- TUES. 4 FEB.** Japan Society of London, at Victoria and Albert Museum, S.W.7. 6 p.m. William Teeling: *Formosa.*
- WED. 5 FEB.** Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: *Tube of all trades.*  
Radio Engineers, British Institution of, at School of Hygiene and Tropical Medicine, Keppel Street, W.C.1. 6.30 p.m. W. J. G. Beynon: *Radio investigations during the I.G.Y.*  
Road Transport Engineers, Institute of, at Mechanics Institute, Nottingham. 7.30 p.m. J. Johnson: *Wear and tear.*
- THURS. 6 FEB.** Horological Society, British, at Royal Society of Arts, W.C.2. 7 p.m. H. N. Walford: *Fifty years of horological manufacturing.*  
Metals, Institute of, 17 Belgrave Square, S.W.1. 6.30 p.m. B. R. T. Frost: *Corrosion by liquid metals.*  
Photographic Society, Royal, 16 Princes Gate, S.W.7. 7 p.m. F. J. G. Beeson: *Discharge lamps: principals and practice.*  
Radio Engineers, British Institution of, at Manchester College of Technology. 6.30 p.m. Alan Douglas: *Electronic musical instruments.*  
Refrigeration, Institution of, at Pepys House, 14 Rochester Row, S.W.1. 5.30 p.m. Dr. Audrey Smith: *The preservation of living cells and tissues at low temperatures.*  
Graves Art Gallery, Sheffield. 7.15 p.m. Sir Geoffrey Keynes: *Blake: The Artist.*
- MON. 10 FEB.** Geographical Society, Royal, 1 Kensington Gore, S.W.7. 6 p.m. Film: *The last cannibals.*  
Metals, Institute of, at 39 Elmbank Crescent, Glasgow, C.2. 6.30 p.m. D. V. Atterton: *Recent developments in the foundry.*  
Transport, Institute of, at 66 Portland Place, W.1. 5.45 p.m. Branker Memorial Lecture. Air Commodore W. E. G. Mann: *Problems and economics of air traffic.*
- WED. 12 FEB.** Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: *Waterproofing building structures.*  
Engineering Inspection, Institution of, at Royal Society of Arts, W.C.2. 6.45 p.m. Dr. C. J. Anson: *Cost aspects of quality control.*  
Metals, Institute of, at The Central Library, Manchester. 6.30 p.m. J. M. J. Estevez: *Plastics versus metals.*  
United Service Institution, Royal, Whitehall, S.W.1. 3 p.m. Sir Tom O'Brien: *History of Trade Unions and their functions to-day.*
- THURS. 13 FEB.** Metals, Institute of, at 9 The Temple, Dale Street, Liverpool. 7 p.m. H. T. Angus: *Wear in cast iron.*
- FRI. 14 FEB.** Antiquarian Horological Society, at Science Museum, S.W.7. 7 p.m. W. J. Gazeley: *Clock Escapements.*
- MON. 17 FEB.** Geographical Society, Royal, 1 Kensington Gore, S.W.7. 5 p.m. A. Stephenson: *Surveying and the modern expedition.*
- TUES. 18 FEB.** Industrial Transport Association, at Royal Society of Arts, W.C.2. 6.30 p.m. N. G. Brooks: *Compression ignition engines through three decades.*  
Wool Education Society, at Royal Institution, Albemarle Street, W.1. 7 p.m. H. B. Carter: *Science and the wool grower.*
- WED. 19 FEB.** Building Centre, 26 Store Street, W.C.1. 12.45 p.m. Film Show: *Keeping houses warm. House foundations on shrinkable clays: methods and costs.*  
Fuel, Institute of, at Institution of Civil Engineers, Great George Street, S.W.1. 5.30 p.m. Sir Christopher Hinton: *Nuclear engineering: some difficulties in the first ten years.*  
Kinematograph Society, British, at Royal Society of Arts, W.C.2. 7.15 p.m. Dr. R. W. G. Hunt: *Light filters in theory and practice.*
- THURS. 20 FEB.** Anthropological Institute, Royal, 21 Bedford Square, W.C.1. 5.30 p.m. S. Howard Hansford: *Some thoughts on Chinese bronzes (with slides).*  
Metals, Institute of, at College of Technology, Gosta Green, Birmingham. 6.30 p.m. Professor J. G. Ball: *Neutron irradiation effects in metals.*  
Graves Art Gallery, Sheffield. 7.15 p.m. Professor V. de S. Pinto: *Blake: The Visionary.*
- FRI. 21 FEB.** Engineers, Junior Institution of, 14 Rochester Row, S.W.1. 7 p.m. Dr. W. Abbott: *A fully educated engineer.*

## OTHER ACTIVITIES

**MON. 27 JAN. to FRI. 29 JAN.** British Decorators and Interior Designers, Incorporated Institute of, at 13 Portman Square, W.1. 10 a.m. to 4.30 p.m., 6.30 a.m. to 9 p.m. on 29 Jan. Exhibition of Students' work.

**NOW UNTIL SUN. 26 JAN.** Imperial Institute, S.W.7. Mon. to Fri., 10 a.m. to 4.30 p.m., Sat. 10 a.m. to 5 p.m., Sun. 2.30 to 6 p.m. Exhibition: *Paintings by Ali Imam.*

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Date of Birth

We hereby propose and recommend the above Candidate as a fit and proper person to become a Fellow/an Associate Member of the Royal Society for the Encouragement of Arts, Manufactures and Commerce.

Signatures of three fellows, at least one of whom must sign on personal knowledge :

Name in Block Capitals

Signature

[ ]

(on personal knowledge)

[ ]

[ ]

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Elected

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When a ship goes on the rocks  
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### R.S.A. PUBLICATIONS

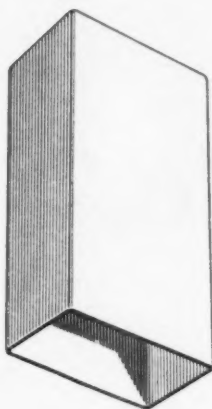
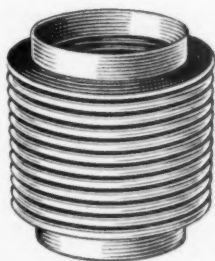
The following are some papers and lectures read to the Society in recent years. Copies of the *Journals* in which they were published are obtainable on application to the Secretary. Fellows are allowed a discount of 25 per cent. Lists of titles of papers and lectures read in earlier years are also obtainable on application.

THE SAFETY FACTOR IN CONSTRUCTION. Two Lectures by G. A. Gardner and Prof. F. S. Thompson ... ..	2/6	MUSIC (Three Lectures)—IN EDUCATION, by Dr. Greenhouse Alt; IN THE THEATRE, by Leslie Bridgewater; IN MEDICINE, by Frank Howes ...	3/6
THE NOVEL. Three Lectures by Dennis Wheatley, Michael Joseph and Christina Foyle ... ..	3/6	VIRUS DISEASES OF PLANTS. By F. C. Bawden	2/6
THE KEMANO-KITMAT HYDRO-ELECTRIC POWER DEVELOPMENT. By F. L. Lawton ...	2/6	THE DETECTION AND PREVENTION OF ANTI-SOCIAL BEHAVIOUR IN YOUNG PERSONS. By Sir Basil Henriques ... ..	2/6
THE ASCENT OF EVEREST. By Wilfrid Noyce ...	2/6	NEW WAYS OF FLYING. By Major Oliver Stewart	2/6
WEATHER MODIFICATION AND ITS VALUE TO AGRICULTURE AND WATER SUPPLY. By Dr. Irving P. Krick ... ..	2/6	RADIO ASTRONOMY. By Professor A. C. B. Lovell	2/6
SAFETY IN TRANSPORT. Three Lectures by Dr. W. H. Glanville, Sir Vernon Brown and Lieut.-Colonel G. R. S. Wilson ... ..	3/6	STONE IN ARCHITECTURE. (Three Lectures.) By R. J. Schaffer and W. F. Haslop ... ..	3/6
COLOUR TELEVISION BROADCASTING. By C. G. Mayer ... ..	2/6	ADVERTISING AND PUBLIC RELATIONS TO-DAY. By Sir Stephen Tallents ... ..	2/6
THE DESIGN OF NEW SCHOOLS. By C. H. Aslin	2/6	RESEARCH IN INDUSTRY. By B. K. Blount	2/6
LETTER DESIGN AND TYPECUTTING. By Harry G. Carter ... ..	2/6	SCIENTIFIC ASPECTS OF THE DETECTION OF CRIME. By L. C. Nickolls ... ..	2/6
LIFE IN THE YEAR A.D. 2000 Two prizewinning essays ... ..	2/6	RECENT DEVELOPMENTS IN THE FEDERATION OF RHODESIA AND NYASALAND. By Sir Gilbert Rennie ... ..	2/6
SCIENCE AND FOOD PRODUCTION. By Dr. L. H. Lampitt ... ..	2/6	INSECT PHYSIOLOGY IN RELATION TO INSECTICIDES. By Professor V. B. Wigglesworth	2/6
RESEARCH IN THE COAL INDUSTRY. By Dr. Idris Jones ... ..	2/6	DESIGN FOR TELEVISION. By F. H. K. Henrion	2/6
THE COPPERBELT OF NORTHERN RHODESIA. By R. I. Frain ... ..	2/6	CHILDREN AND FILMS. By Miss Mary Field ...	2/6
TSETSE FLY CONTROL. By Dr. K. R. S. Morris ...	2/6	THE SNOWY MOUNTAINS SCHEME. By C. M. Gray ... ..	2/6
		SCIENCE IN KITCHEN PLANNING. By Mrs. M. Wheatcroft and Miss J. E. Walley ... ..	2/6
		ENGINEERING ELECTRONICS. (Three Lectures.) By Dr. L. E. C. Hughes ... ..	3/6

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YHW/216



Today, when Mrs. Smith of London rings her sister in New York, her voice is heard crystal-clear over 3,000 miles away. This modern miracle of communication is made possible by a new cable system —

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Polythene, discovered and developed by

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not only in industry, but in our very homes. It is helping to bring television to our fire-sides, to make unbreakable toys and handy squeeze bottles for cosmetics. It even pipes cold water supplies and, as a packaging film, protects many of our foodstuffs. With its remarkable range of properties,

'Alkathene' — as I.C.I.'s polythene is called —

has become one of the world's most versatile materials.

*Thus, and in a thousand kindred ways, I.C.I.'s research  
and production are serving the Nation.*



